

FEBRUARY 20, 1978

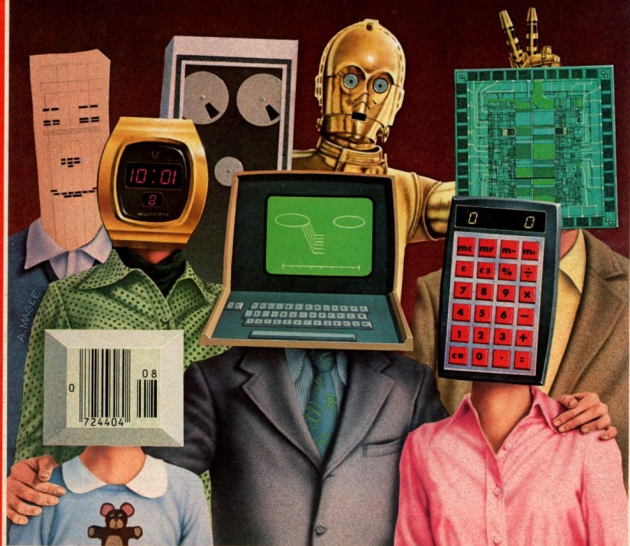
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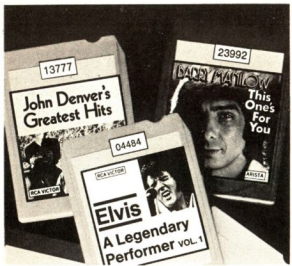
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A Letter from the Publisher

This week TIME welcomes its newest staff member: PDP-11/34. Programmed according to TIME's design, PDP-11/34 will speed the handling of the hundreds of queries and reports that flow between the home office in New York City and our 28 bureaus, scattered around the world.

PDP etc. could hardly have arrived at a more propitious moment, for in this issue TIME presents a special 15-page section entitled "The Computer Society." The report explains just how the world of electronic sorcery works, and examines its impact on our daily lives. To make such a complicated technical phenomenon understandable, a team of six correspondents, five writers, four reporter-researchers and three photographers spent a month interviewing scientists, visiting manufacturing plants and trying out the newest and most exciting computerized products.

"Computers are already in our homes and offices. They help us figure our income taxes and play games with us," says Senior Editor Leon Jaroff, who directed the project. "The computer age has arrived." Indeed, computers are now as much a part of TIME as typewriters. Jaroff, who holds degrees in electrical engineering and mathematics from the University of Michigan, edited the stories on a video display terminal, part of our elaborate copy



Editor Jaroff and friend: his computer terminal

processing system. In 1967, TIME was one of the first magazines to set copy with a computer. Today our improved system also handles the other TIME Inc. publications (FORTUNE, MONEY, PEOPLE, SPORTS ILLUSTRATED), cutting processing time by 75% or more compared to older methods.

Not only is TIME Inc.'s computer nimble, it is enterprising. Using an electronic "dictionary," which it scans in a fraction of a second, the system can figure out how to break almost any

word up to and including the 14-syllable supercalifragilisticexpialidocious. It can set type in any one of TIME Inc.'s own 127 fonts, tailor-fit copy to a layout, and draw in boxes and assorted lines. Finally, at the rate of a page every 15 seconds, the system can whisk the whole magazine to our printers in Chicago via telephone wires. TIME will soon acquire yet another computerized device—a Videocomp machine that will enable our editorial staff in New York to see almost exactly how every page

will look in the magazine before it is sent off to the printers.

But for all their ingenuity, TIME's electronic machines still lack the human touch—the skills of writing, editing and analyzing that are really responsible for this week's look at the Computer Society.

Ralph P. Davidson

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44 Cover: The computers are coming! A 15-page special section examines the impact of the Age of the Miracle Chip on the home, business and society. How the electronic wizard works, and why it promises a new Industrial Revolution.



12 Nation: New England digs out after the worst blizzard in nearly a century. ► Bucked up by Carter, Sadat proposes a new approach to peace in the Middle East. ► The Senate finally opens debate on those Panama Canal treaties.



28 Ethiopia: A polyglot army of Marxists—including Russians, Cubans, Czechs and East Germans—plus some South Yemenis and a few Israelis are helping the Addis Ababa junta. The goal: regaining Ogaden from the Somali rebels.

30 World

In France the center-right is trying hard, but the leftists are still favored in the March elections. ► Tory Leader Margaret Thatcher makes immigration (race) a British political issue. ► Costa Rica has a McHale's Navy, no army—and a democracy that works. ► Canada uncovers a Russian spy ring.

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As the tiny, complex chips of silicon get smarter and subtler, the line between humans and computers is blurring.

84 Medicine

The new Red menace—Russian flu—blitzes the service academies. ► A lowly drug for gout can also help heart patients.

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Ford Motor Co. is socked with a \$128.5 million judgment as personal injury awards against U.S. companies soar.

87 Education

The cost of going to college has ballooned by 77% in less than a decade. Now Jimmy Carter is trying to do something to help.

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Coming Home is the first film about Viet Nam to come to grips with how deeply and bitterly the war affected Americans.

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Duane Hanson's astonishingly lifelike sculptures blend right in with the crowds at Manhattan's Whitney Museum.

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Pontiac Sunbird

Letters

The Economy

To the Editors:

When will we value the N.G.P. (national growth of people) over the G.N.P.? I fear not until we run out of the means of perpetuating our cherished consumption economy. Your article "Trying to Build Confidence" (Jan. 30) implied that a healthy, happy America buys, buys, buys everything business sells, sells, sells.

Laury Kohlenbrener
Madison, Wis.

Cutting taxes while offering a deficit budget is no way to strengthen the dollar or to achieve economic stability.

Anyone who believes that more



spending with reduced income will cure inflation must be a peanut head!

Harvie Barnard
Tacoma, Wash.

So \$500.2 billion is "a tight budget"? Only a \$60 billion deficit? In 1959 President Eisenhower presented our first \$100 billion budget; people were outraged. Now, hardly a whimper is heard as Jimmy Carter quintuples that expenditure.

Michael Auerbach
Waterford, Conn.

He mentioned it many times during the campaign, but not until he became President and presented his budget of \$500,000,000,000 did we find out what Jimmy Carter really meant by zero-base budgeting.

K. Harold Sankman
Skokie, Ill.

Italy's Protest Vote

As a European-oriented democratic socialist, I understand American apprehension at the mounting power of the Communist Party (Jan. 23). My question, however, is: Do you Americans think that one-third of the Italian electorate has just gone crazy in voting for the Communists,

or do you think there must be a reason for this massive protest?

After World War II, Italy's society underwent a forced industrialization that has made it pass from a backward agricultural Mediterranean country to a major industrial power in the West. At what cost did all this happen?

Italy is now a sagging, corrupt, crisis-ridden industrial country where all—and I mean *all*—social problems have been left unsolved and ignored. Our society, especially the young people (now accused of being monsters), has become fully aware that all our hard work returns nothing in the way of jobs, better schools, hospitals, houses and public services.

Italians don't want another dictatorship. We want freedom, but we care about what we *don't* get from democracy.

Paolo Roccatani
Rome

After World War II, the U.S. and Russia wanted to keep the status quo in their zones of influence. But Russia has been more aggressive and has tried everything to increase its power and diminish America's. America wants the status quo in Italy; Russia does not. Although the Communists in Italy are preaching freedom, justice and equality, the Russians do not care whether there is peace, prosperity or justice in Italy, or a civil war or misery. What matters is to gain power, especially against America.

Angelo Bertolo
Pordenone, Italy

Homosexuality and the Clergy

Those watching the Presbyterians' debate on "Homosexuality and the Clergy" (Jan. 30) may find it easier to understand how modern-day liberal theologians support homosexuality if they realize that those theologians deny that the Bible, in its entirety, is God's word. Once they reject the authority of the Bible in one area, they lose any basis to claim the Bible's authority in other areas as well.

They are like tumbleweeds, cut from their roots, blowing with every change of the secular winds.

Kenneth W. McClintock
Council Grove, Kans.

Presbyterian liberals dismiss the hostile view of Leviticus and St. Paul toward homosexuality as "conditioned by time and place." But that is exactly why any sane man should dismiss the Presbyterian liberals. Their view is one conditioned by and limited to the last half of the 20th century and held by only a handful of ecclesiastical bureaucrats.

(The Rev.) S. Bowen Matthews
Wilmington, Del.

Hallelujah! Some of the Presbyterians actually are Christians!

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Letters

and the love of one's neighbor as oneself are outmoded. Thankfully, some of the Presbyterians have finally admitted that the homosexual is created in the image and likeness of God, too.

Bruce L. Henry
Northville, Mich.

That the church has been a pious fraud for centuries is no secret. What can more cogently point to its abnegation of moral authority than a serious consideration among the clergy of whether homosexuals can, apparently in good conscience, aspire to the pulpit? Why not prostitutes, too? After all, some of them may be "Christian believers"!

D. June Fredman
Millersville, Mo.

The Short People

Shame on you, TIME, for getting involved with the witless controversy over Randy Newman's hit, *Short People* (Jan. 30). My initial impression of the song remains unchanged by all this brouhaha: it's a funny song about prejudice of any sort.

Only a paranoiac or a bigot could find this song offensive.

Andrea M. Cooke
Chicago

I, with other short friends of mine, enjoy Randy Newman's song. The short-sighted, short-minded, short-souled, short-of-brains people who hate *Short People* are short of humor as well.

Joseph Nuttall
Tucson, Ariz.

I am 6 ft. tall, and for most of my 42 years have borne, with good grace and humor, people asking me, "How's the weather up there?" As far as I'm concerned, Randy Newman's *Short People* is just a catchy tune.

Patti Griffiths
Oklawaha, Fla.

Loyal Repairmen

Your cartoon with "Hoover's Home Improvements" (Jan. 23) made me realize why J. Edgar Hoover had FBI men do his repair work. Since bugs or bombs could have easily been planted by repairmen, wasn't it safer and more economical for loyal employees to do the work? An alternative would have been to hire outside help and assign a loyal agent to watch each repairman.

Eight men to do the job of four is an economic waste.

Josephine Hubert
Northport, N. Y.

Return of Romance

Hooray for Frank Trippett for his Essay, "New Sentimental Journey" (Jan. 30). Fortunately, he has merely predicated

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Letters

what we romanticists have always (albeit secretly) predicted—that the pendulum would inevitably swing back, in our favor!

(Mrs.) Boni Crnic
Los Angeles

I hope you don't mean to imply that because people seem to be treating each other more romantically, the conditions under which women had to live in the so-called "romantic" ages will also return.

Annie Wauters
Washington, D.C.

If saccharine love songs, soap operas, tea dances and simple-minded optimism mean a return to romanticism, then give me the harsh realism of my "generation of nightmares." The "self-indulgence" of those who gave their time, money and sometimes lives to the antiwar and civil rights movements helped make the current dream ride possible. The '60s were no sentimental journey, but we survived those years by living, not dreaming through them.

Katharine Kellogg
Hamburg, Mich.

Jerry Brown's Energy Program

Thank you for the article on Governor Jerry Brown's energy and space programs (Jan. 30). I find more and more to like about that renegade politician; he seems to wield his power with intelligence and without dollar waste. Right or wrong, the man has both courage and vision.

Thomas Jack
Brownsville, Pa.

Jerry Brown's wood chips, walnut shells and rice hulls might produce enough heat for the state capitol if they were *baked* until they emit organic gas, which is then collected and burned as fuel. But what are you going to use as fuel to bake them with, Jerry?

Marney Stroud
Monterey, Calif.

According to California energy experts, once the wood chips and walnut shells are lit with a blowtorch or an electric hot rod, they continue to bake on their own and give off a steady supply of gas.

Smothered Onions

A letter from James Kuzmak (Jan. 23) criticized the listing of "steak with smothered onions" on a menu. Reference to any number of well-known cookbooks will reveal that smothered onions are lightly sautéed with the cover on, hence the "smothering."

Richard F. Grambow
Lopez, Wash.

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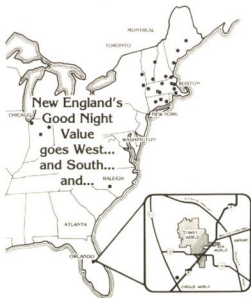
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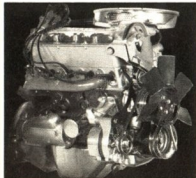
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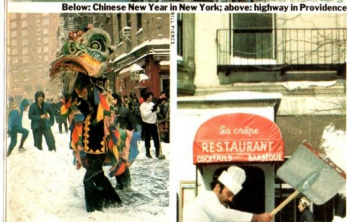
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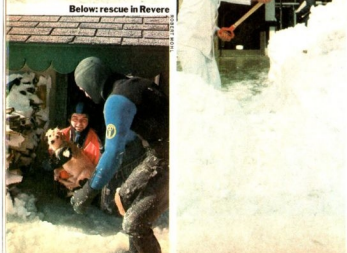
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Above: wreckage on Fire Island, N.Y.; below: flooded street in Revere, Mass.



Below: Chinese New Year in New York; above: highway in Providence



Below: rescue in Revere



Left: Digging out a Boston restaurant; below: getting around in downtown Boston



Nation

TIME/FEB. 20, 1978

Blizzard of the Century

Not since 1888 has the Northeast suffered such a winter storm

Buffed by winds of up to 110 m.p.h., a 42-ft. Coast Guard pilot boat, the *Can Do*, capsized and sank in Salem Harbor. The captain and the four-man crew were drowned. In nearby Nahant, Melvin Demit, 61, was lighting the furnace in his basement, when a wall of water crashed into his house and engulfed him. In Scituate, a raging sea swept five-year-old Amy Lanzikos to her death just as a rescue boat was bringing her to safety.

This was the scene along the Massachusetts coast last week, as a mammoth blizzard—the worst since 1888—slammed the Northeast, dropping from 1 to 4 ft. of snow in the latest blast from a winter of stormy discontent. Raging from Virginia to Maine, the hurricane-like storm killed at least 56 people, caused an estimated half billion dollars' worth of damage and crippled Connecticut, Massachusetts and Rhode Island for five days.

Providence was particularly hard hit. With main roads impassable after the 26-in. snowfall, Governor J. Joseph Garrahy ordered all Rhode Island businesses, except for grocery stores, to close. Not until this week was the state expected to return to normal. By comparison, the blizzard left New York City paralyzed for a mere 24 hours and entirely spared the Midwest, which was still digging out from a late January blizzard, that region's worst in a century.

At first, for the fortunate majority, last week's storm could be taken in good spirits and looked on as a welcome holiday. Cross-country skiers glided through city streets. Fraternity men tossed snowballs at sorority women on Boston's Commonwealth Avenue. Crowds applauded the impromptu performances of jugglers and clowns on Boston Common. At Boston Garden, some 11,000 fans showed up during the storm for college hockey play-offs. Many fans could not get home afterward and, sustained by free coffee and hot dogs, bunked down on the wooden seats.

Then the situation in Boston worsened. Two power blackouts cut off electricity for 100,000 people at the height of

the storm. In some working-class neighborhoods, looting broke out. Long lines formed at the few food markets that could open, and shelves were quickly stripped bare of milk, bread, potato chips, ginger ale—almost anything edible. Not until two days after the storm, when the major highways were finally cleared, could the city be resupplied with food.

For coastal residents, the blizzard meant nearly 40 hours of sudden death

bestseller *The Outermost House*. The surf in Rockport, Mass., demolished a red fishing shack known as "Motif No. 1," a favorite subject for local artists. In Maine, the losses included three lighthouses and the amusement pier at Old Orchard Beach, where Louis Armstrong and Benny Goodman once played.

With roads in Massachusetts clogged by mounds of snow, Governor Michael Dukakis banned all public-bus and private-car travel, but not before thousands of motorists were already stranded. To force people to stay home, Dukakis declared a three-day bank holiday. As cash ran short, public officials asked stores to accept checks and even IOUs from their customers. For the first time in its 106-year history, the *Boston Globe* was unable to distribute an edition.

Dukakis requisitioned every available snowmobile, four-wheel-drive vehicle and truck, and mobilized some 20,000 state workers, 4,000 National Guardsmen and 300 federal troops, some from Georgia, North Carolina and Texas, to help clear the snow. One of the first

tasks was to open a runway at Logan International Airport so that the Army could fly in additional front-end loaders, dump trucks and emergency electrical generators.

Officials at the National Weather Service in Washington blamed the storm on a system of intense high pressure that has been meandering back and forth across Canada all winter. A similar system, known to forecasters as a "blocking high," caused California's two-year drought. This winter the Canadian high has been spraying snow and cold in seemingly haphazard, unpredictable directions, plunging temperatures to the 20s in Atlanta and setting snowfall records in places like Valdez, Alaska, which has had more than 63 in. so far. Meteorologists frankly admit that they understand very little about "blocking highs"—except that this one will surely bring more cold and snow. Advises James O'Connor, acting chief of the National Meteorological Center: "Don't put your long Johns in mothballs."



Street scene in Boston's Dorchester section at the height of the snowfall
A \$500 million howler that spread destruction from Virginia to Maine.

and devastation. Winds lashed the seas into 50-ft. waves that smashed hundreds of seaside houses and forced thousands to flee inland. In Revere, Mass., some people clung to the rooftops of their houses. "Twice each day, when the tide came in, I thought I was going to die," said Anthony Chiarella, who retreated to his attic with his dog Sergeant. In Hull, Teacher Martha Fingers and her family rested in shifts so that they would not be caught unaware if the house was about to be swept away. "We didn't really sleep," she told reporters. "The waves kept rocking the house."

The sidewheeler *Peter Stuyvesant*, which formed part of Anthony's Pier Four Restaurant, was torn from its concrete pilings and wrecked in Boston Harbor. Outside of Boston, the storm destroyed some of New England's best-known landmarks. Among them was the seaside dwelling in Eastham on Cape Cod that was made famous by Naturalist Henry Beston's 1928

Determined to Persevere

Sadat wins U.S. support; Dayan follows with a challenge

It was like a game. Just as Egypt's President Anwar Sadat was completing his series of Washington appearances, Israel's Foreign Minister Moshe Dayan arrived in the U.S. for his own meetings. Each wanted the U.S. to exert pressure on the other.

Sadat had arrived in Washington feeling and looking glum about the fate of the peace initiative that he had begun with his historic visit to Jerusalem last November. "Carter found Sadat discouraged and demoralized over the slowness of progress," said one high Administration of-

Palestinian state, he insisted that the possibility of such a state existing in the future could not be ruled out. He linked Egypt's offer to sign a full peace settlement to Israeli treaties with Syria and Jordan, which have refused to join the negotiations; these two points, as well as the proposed reliance on U.N. forces, may not meet easy acceptance within Israel, but the proposal did lead one U.S. Senator who is normally pro-Israel to remark: "If I were Begin, I'd sign an agreement tomorrow based on these guarantees."

In the course of the talks with Car-

perment every possible chance until I reach the conclusion that enough time has elapsed without achieving any tangible progress." Yet the Egyptian leader was sharply critical of Israel: "We, together with world public opinion, hold the Israeli government responsible for jeopardizing the prospects for peace."

Later in the week, Carter reaffirmed the long-standing U.S. opposition to Israeli settlements in the occupied territories, and warned that new settlements would hurt the peace effort. That move drew a sharp response from Israel's Menachem Begin, who was in Geneva attending a meeting of European Jewish leaders. Said he: "I do not accept the view that Israeli settlements are illegal and constitute an obstacle to peace."

Before leaving Washington, Sadat met with members of both houses of Congress to press his case for U.S. planes to replace the aging MiGs supplied to him before Egypt's break with Moscow in 1972. "Sadat made a very good case for arms," said Washington's Senator Henry Jackson, who is known as one of Israel's best friends in Washington. Although Sadat had asked for sophisticated F-15s and F-16s, the prospect was that Carter would recommend sale of 50 to 60 of the more modest F-5E fighter planes to Egypt.

Despite Carter's best efforts, Sadat left the U.S. without agreeing to schedule resumption of the bilateral political talks. On the way back home, Sadat was stopping off to drum up support in England, West Germany, Italy, Austria, Rumania and France. The next diplomatic move will be a series of shuttle flights between Cairo and Jerusalem, with Assistant Secretary of State Alfred ("Roy")



U.S. visitors: Israel's Foreign Minister Moshe Dayan, Egypt's President Anwar Sadat

"I think Sadat left in an upbeat mood. How long that mood will last, I don't know."

ficial. "Sadat's feelings seemed genuine and deep." At secluded Camp David, President Carter worked hard to "energize" Sadat, recalled one aide, reminding him that setbacks were inevitable and assuring him of U.S. support. Carter was effusive in his praise, even calling the Egyptian "the world's foremost peacemaker."

Sadat, TIME has learned, made a six-point proposal for meeting Israel's security needs that impressed U.S. officials with its flexibility. The plan envisioned some Israeli military strongpoints remaining on the West Bank following a general troop withdrawal. It also called for U.N. military control of the strategic site of Sharm el Sheikh, and stationing of almost all Egyptians in the Sinai to the west of the strategic Mitla and Giddi passes, with a U.N. force east of the passes and creation of a large "buffer zone."

Although Sadat was willing to agree to something less than an independent

ter, it became obvious that Sadat was even more frustrated than had been expected about what he considered the hardening of the Israeli position—particularly Israel's continued insistence on the right to settlements in territories captured from the Arabs in the 1967 war. Before leaving Camp David, Sadat shocked Carter and his aides with the announcement that on the next day, in a speech at Washington's National Press Club, he planned to say publicly that Egypt did not intend for the present to return to any meetings of the Israeli-Egyptian Political Committee, which he had broken off last month. Worried U.S. officials delayed Sadat's departure from Camp David by an hour, while they argued that such an announcement would bring to a halt whatever peace momentum remained.

They were relieved the next day when Sadat told his audience: "I am determined to persevere. I am willing to give the ex-

Begin: It All Goes

U.S. mediators talk publicly about the need to maintain the Middle East "peace process," but that phrase implicitly acknowledges how far away real peace is. Recently returned from the Middle East, TIME Diplomatic Correspondent Strobe Talbott offered this assessment:

American officials, both in Washington and along the shuttle route, privately describe their task as a holding action, a way of buying time while a discouraged Anwar Sadat and a defiant Menachem Begin learn to engage in the pragmatic diplomacy that last year's euphoric summitry made possible.

That holding action will probably have to last for a long time. For while Egypt's Sadat may recover from his discouragement, Begin's defiance seems to be a permanent condition, one that makes it extremely difficult to imagine the

Atherton Jr. as chief shuttle. "I think Sadat left in an upbeat mood," said a top Carter assistant. That mood lasted at least through Sadat's arrival in Austria, where he met with Israeli Opposition Leader Shimon Peres. The Egyptian President said in Salzburg that there was "sufficient momentum in the present peace initiative to achieve a final settlement."

Concerned by the good publicity Sadat received in the U.S., Israel's Dayan sought to shore up his country's traditional support among Americans with a hastily planned tour of the U.S. At an unusual public meeting of the Conference of Presidents of Major American Jewish Organizations, Dayan urged his sympathetic audience to remember that it was the Egyptians who were refusing to negotiate, not the Israelis.

Later in the week, during a meeting with the editors of TIME, Dayan said one major cause for Sadat's breakoff of the political talks was the failure of other Arab leaders to join in the negotiations. "Sadat is desperate not to stay alone" in the talks with Israel, said Dayan. Sadat's hoped-for partner is Jordan's King Hussein. But, said Dayan, "he cannot get Hussein into the process unless he gets an agreement in advance on a West Bank withdrawal and a Palestinian state ... and we are not going to do it."

Dayan may carry back to Israel an urgent invitation for Prime Minister Begin to visit Carter in Washington. Begin is scheduled to visit the U.S. next at the end of April for ceremonies marking the 30th anniversary of Israel's independence. But after their experience of Sadat's depression and changeability, some insiders doubted that Carter would want to wait that long. Said one: "The President wants Begin here as soon as possible to get things unstuck before what's left goes *poof*." ■



Sadat with Jewish leaders, including (left) World Jewish Congress Chairman Philip Klutznick

American Jews: No Consensus

War of words over Middle East leaves them divided

At last count there were about 300 Jewish organizations in America—and almost as many points of view, or at least shadings, among American Jews as to what, precisely, Anwar Sadat and Menachem Begin should be doing to bring about a Middle East settlement. Consensus on anything is hard to come by, except for the obvious fundamental that Israel has the right to exist as an independent Jewish state in peace with its Arab neighbors. On that, virtually all Jews feel strongly and emotionally.

Among Jewish leaders interviewed last week by TIME, the euphoria of Sadat's visit in November to Jerusalem has

waned, and been replaced by the old familiar weariness with an ancient conflict that never ends. Says Robert Blumenthal, assistant director of the American Jewish Committee of Los Angeles: "The community is tired of 30 years of drained emotion. We can still raise funds for Israel, but it looks like Sadat is trying to divide the Jewish community."

Most of the division is below the surface, although it occasionally breaks into the open, as it did last week when all but one member of the Conference of Presidents of Major American Jewish Organizations refused to meet with Sadat in Washington, as the Carter Administra-

Back to Pharaoh

"peace process" producing a genuine and lasting peace any time soon.

Sadat has lately been wringing his hands about Israel's claimed right to defend its civilian settlements in the Sinai. In fact, Begin and his colleagues have left themselves considerable latitude to negotiate on that matter. The much more fundamental, probably insoluble problem is Begin's seeming commitment, passionately held and repeatedly articulated, to the incorporation into the Jewish state of what he calls the liberated territories of Judea and Samaria—and what most of the world, the U.S. included, calls the occupied territories of the West Bank.

It is that Zionist irreverence that distinguishes Begin from all preceding Israeli Premiers, and it is that policy that could make peace unattainable as long as he is in office. Golda Meir and Yitzhak Rabin were concerned with how

long to postpone Israeli withdrawal from the West Bank. What Begin is talking about is how long to postpone Israeli annexation of the West Bank. Even if he offers to do so indefinitely, there is no way that any Arab leader can make peace with Israel on those terms.

Last year, when Begin's Likud coalition won its upset victory over the Labor Party, Washington hoped that Begin's ascent to power would temper the ideological fervor he had shown during his 30 years of opposition. As it turned out, Carter and his top aides hardly knew what a real ideologue was until they confronted Begin, and it took them a while to appreciate the phenomenon. When Foreign Minister Moshe Dayan, for instance, talks of his people and their struggle to survive, his terms of reference are the wars of 1948, 1956 and 1967, the crises he has personally known. Begin, by contrast, speaks with equal feeling not only about the Holocaust but about the Exodus and

the destruction of Solomon's Temple. When Dayan talks about Egyptians, he regards them as the warriors who have fought the Jews over the past three decades. Begin views Sadat as heir to the pharaohs who enslaved the Jews almost four millennia ago. His antipathy toward Arabs goes beyond politics.

Nor does Begin hold President Carter in high esteem. Publicly, he has exuded friendship and gratitude toward Washington. But in the company of colleagues, he has often been scathing about Carter. At least one Israeli has listened to Begin dismiss Carter as a naive, none-too-bright Jimmy-come-lately who can easily be manipulated. Reports of such talk have found their way back to the Administration. When asked to comment, Administration aides tend to smile thinly and change the subject. After all, they philosophize, if Begin can take the long historical view, so can they. Only in the other direction, forward to some time when an Israeli Premier may be less of an ideologue. ■

Nation

The Presidency/Hugh Sidey

Obfuscation? Dumb Insolence?

tion had invited them to do. But Philip Klutznick, a Chicago businessman who heads the World Jewish Congress, attended—and drew complaints from other leaders that he was dividing and weakening the American Jewish community. Retorted Klutznick: "Our Government has exerted every bit of legitimate influence to try to keep the negotiations going, and I think that our Government should be applauded for that."

Many Jews are irritated by Sadat's overt public relations campaign to win the backing of U.S. opinion. But there are those who feel Sadat has every right to make his views known, and forcefully. Says Samuel Kaplan, of Washington, D.C., a board member of the Zionist Organization of America: "From Sadat's point of view, this kind of campaign is perfectly legitimate and understandable. We've been doing it for years. There's no reason why he shouldn't."

The president of the same organization, Rabbi Joseph P. Sternstein of New York, criticizes Sadat for wanting too much too soon, specifically by insisting on Israeli withdrawal from occupied lands and establishment of a Palestinian state on the West Bank of the Jordan. "No one in the Jewish community will agree to that," says Sternstein. "Neither of these things can ever be accepted."

Not everyone agrees. Indeed, the whole issue of the disputed settlements worries many Jews. One small (membership: fewer than 2,000) Jewish organization called Breira (Hebrew for alternative), based in New York, feels that Israel must give up a great deal if peace is to come. "Israel cannot have both peace and territory," says Breira Executive Director Dan Gillon, arguing that the West Bank is not necessary to the security of Israel. There are others, too, who would be willing to abandon Jewish settlements in the Sinai. Israel, says Rabbi Stephen Pinsky of Tenafly, N.J., "should be able to give up the Sinai, to take a chance on this area." David Weinstein, president of Chicago's Spertus College of Judaica and a frequent visitor to Israel, agrees. Says he: "Relocate the Sinai settlers elsewhere and give that territory back entirely to Egypt."

Israeli Foreign Minister Moshe Dayan was quick to warn American Jews last week that any misgivings they might have are of no consequence. "I wouldn't like them to tell us what to do," he said, adding caustically that he admired the Sinai settlers "rather more than I admire American Zionists who do not go to live in Israel."

In general, though, many Jews feel that the struggle for public support is too noisy, and that it fails to lead toward peace. Says Leo Dunn, president of Boston's Jewish Community Council: "It would be better to stop the public relations push in the United States at this point and go and sit down for some quiet negotiating."

Joe Califano, the Secretary of Health, Education and Welfare, does not have any armies, embassies or national forests, but he may be emerging in the current season as the second most important man in Washington.

He is tinkering with the heart, mind and body of America. In the absence of a threat of war, and with most pocketbooks reasonably well filled, those subjects are looming again as pre-eminent national concerns. Almost every day Califano is in the midst of the skirmishes on abortion, student loans, school desegregation, treatment of the handicapped, hospital costs, welfare reform, social security, smoking, drug control and dozens of other issues that touch the daily existence of every one of the 218 million people in the U.S.

Califano presides over \$182 billion, 36% of the federal budget. There is a certain clear message in those figures. Mayors and Governors now hover like bees around Califano. Welfare and school money and Social Security benefits help ease the local burdens.

Califano may be what a Cabinet officer should be all about: sometimes defying special interests, his own bureaucracy, even White House aides, but always in resonance with the President. In normal political terms, Califano's job would be considered wall-to-wall frustration. "I love it," he says with a grin, running his stubby hand through his hair as he prepares to rush off to another fray. He is constantly visible, magically at the focal point, part family counselor, physician, lawyer and preacher.



HEW Secretary Califano in his office

declared, "I think he is one of our greatest men in Government today."

Others around town may be more brilliant, eloquent or forceful than Califano, but he is on the verge of becoming the most capable. True, the time is right for him and those very human problems in which he deals. But it is also true that he is something special. He cares. "I want to show people that these social programs can be run right, that they can help those who need help," he says. "I want to show people that you can manage this place."

He has extraordinary energy. He is up at 6:30 a.m., at his desk at 7:15. He meets and confers and testifies until 9 p.m., running in a spare secretary to keep the paper flowing. He jogs on the Mall to keep the blood going. He breakfasts three times a week with Congressmen, goes eyeball to eyeball with every committee member who is important. His good humor and tolerance are legendary.

He has no formula for being a Cabinet officer, he says. But he has a rule that many predecessors did not have. "You have to decide," he says. "Then do it. Don't let problems fester." For more than a decade the people at HEW hid in their bureaucratic maze, pushed problems aside, anything to avoid a clamoring public. Califano wants to stay ahead, to find out what shatters families, why so many kids don't learn, why it costs so much to run his department.

When anger rises at his ideas, his persistence, his showmanship, Califano pauses for a while behind his big desk and watches and listens. Often the phone rings, as it did after Califano's statement that people who continued to smoke were "committing slow-motion suicide," and Jimmy Carter says, "Don't worry. What you did was right." Recharged, Joe moves on, determined to make American life a little better than it was.



Check which car you think is which and compare your answers with those at the bottom of the page.

	1	2	3	4	5	6	7	8	9	10
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MERCEDES BENZ 280 SE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Opening the Great Canal Debate

Panama treaty proponents confront a parliamentary thicket

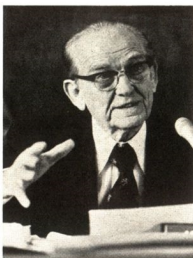
Shortly after 12:30 p.m. one day last week, James B. Allen of Alabama rose slowly to his feet from his aisle seat in the U.S. Senate and announced that he wanted to pose 17 parliamentary questions on the historic issue before the house. One was whether the Senators would have to deal with both English and Spanish versions of the matter, and one was whether amendments to the treaties were themselves subject to amendment.

And so, with all the proceedings carried live on radio for the first time, the Senate finally came to grips with the strongly opposed treaties that would surrender U.S. control of the Panama Canal in the year 2000. Observers predicted at least a month of debate and a close vote. The treaties require a two-thirds majority, or 67 votes, and Administration head counts figured scarcely 60 as certain.

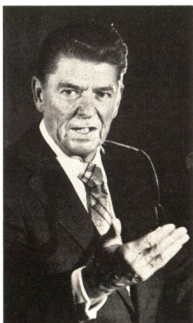
When the White House began counting votes as early as last summer, only 27 Senators would declare their support of the treaties, despite the fact that four Administrations, two Republican and two Democratic, had worked toward the agreements for 13 years. Under the leadership of Ronald Reagan, the conservatives launched an intensive direct-mail campaign to raise money against the treaties, and public opinion polls showed 2-to-1 opposition to ceding the canal.

In all, Carter Administration officials made more than 700 speeches in support of the treaties. Carter himself met with every Senator. He delivered his second fireside chat. He met with 1,500 "opinion leaders," whose names were forwarded to the White House by Senators who needed home-state support before they could dare to announce their own support for the treaties.

"We had to re-create the foreign policy Establishment," says White House Aide Landon Butler. Out of the past came figures like Averell Harriman and John J. McCloy to form the Committee of Americans for the Canal Treaties. Even as what the White House calls "gullible ideologues" were spending millions of dollars to defeat the treaties, the Establishment group was raising hundreds of thousands of dollars on its own, both from direct-mail solicitations and from large corporations with interests in Latin America, like the Chase Manhattan Bank, United Brands and Occidental Petroleum. Meanwhile, former President Ford began speaking out on behalf of the treaties, and former Secretary of State Henry Kissinger worked on key Senators. Together, they made it easier for moderate Republicans to resist the Reagan-led opposition. "If Kissinger had ducked this one," says one White House aide, "we would have been in serious trouble."



Mississippi Senator John Stennis



Anti-treaty Spokesman Reagan

"Pregnant with the seeds of acrimony."

The Republican National Committee did vote last fall to oppose the treaties; its opposition created a difficult problem for Senate G.O.P. members and particularly for the minority leader, Howard Baker of Tennessee, who wants a shot at his party's presidential nomination in 1980. Last month after a visit to Panama, requested by the country's ruler, General Omar Torrijos, Baker announced his pivotal sup-

port for a slightly modified treaty. "I told Senator Baker," said Majority Leader Robert C. Byrd, "if either you or I go against the treaties, they probably will be defeated. If both you and I go for them, they may be confirmed."

After a long year of keeping his political distance from Carter, Byrd plunged into the treaty battle. At his urging, Carter and Torrijos issued a joint statement clarifying two points in the treaties: that the U.S. would permanently retain the right to defend the waterway's neutrality, and that in an emergency U.S. Navy vessels would "go to the head of the line" through the canal.

Byrd and Baker combined to draft amendments to the treaties containing exactly the language of the "clarification"—then deftly persuaded the Senate Foreign Relations Committee to omit it so that a host of Senators could co-sponsor the amendments and thus claim credit for protecting U.S. interests in the Panama Canal Zone. By week's end, 78 Senators had signed on as co-sponsors.

Even though the Administration is now optimistic about ratification (and polls show a majority of the public in favor), the two amendments will not quell significant opposition. Republican Moderate Robert Griffin of Michigan, who has taken on the job of managing the opposition, denounced the treaties last week as "pregnant with the seeds of acrimony and strife... fatally flawed and riddled with ambiguity." Senator John Stennis of Mississippi warned that the transfer would cost more than \$1 billion. Reagan joined in with a nationwide TV address in which he claimed that the treaties might result in the loss "of our own freedom."

After three days of debate, the Senators adjourned for a week-long recess; but before leaving Washington, they agreed to an unusual closed-door session next week to discuss charges that General Torrijos is involved in secret drug traffic. When the issue was raised by a treaty opponent, Robert Dole of Kansas, Fellow Republican Jacob Javits of New York argued that the point was meaningless. "We don't have to prove that Torrijos is an angel. I don't think he is... What is important is whether the treaties are in the long-term interest of the United States, and I think they are."

Javits' argument is increasingly accepted. The canal, too narrow for the largest aircraft carriers and supertankers, is no longer the maritime lifeline it once was. On the contrary, it is widely regarded in Latin America as an anachronistic relic of the colonialist era—and an easy target for nationalist violence.

But whatever jeopardy the treaties face in the Senate lies not in the arguments but in the dozens of amendments that will be offered by opponents. The procedural thickets may be as hard for the Senate leadership to hack through as was the Panamanian jungle 74 years ago. ■

Rookies with Big Dreams

Two fledgling Governors try to make a national splash

Because the Federal Government overshadows the statehouses, first-term Governors can rarely expect to become national figures. It is different, however, when they are considered possible contenders for the presidency. That is why attention has been focused on two of the rookies elected in 1976: Illinois' Republican Governor James Thompson, 41, and West Virginia's Democratic Governor John D. Rockefeller IV, 40, nephew of former Vice President Nelson Rockefeller. Here is how they have fared so far:

Riding High. When "Big Jim" Thompson won the Illinois governorship by a whop-

with the Democrats," he explains, "because everybody was tired of the constant fighting. I wanted to show them that I was not afraid of compromise and that I was not the holder of all wisdom."

He courted the Chicago Democrats in the legislature and quietly cut a deal with them. For years they had wanted to build a new expressway on the West Side to relieve traffic congestion in the city, but Walker had balked at the project, largely because of his hostility to the Cook County Democratic machine. Thompson approved construction of a more modest expressway, and in turn the Cook County Democrats abandoned their drive to

is to separate criminals from the rest of us and to punish them so as to deter other people from similar behavior."

The Governor has had some setbacks. He campaigned hard for a new ethics bill to require strict financial disclosure by state officeholders and better policing of lobbyists. But the bill did not survive the senate. He was also overridden on two vetoes. One of the measures banned the use of state funds for abortions for women on welfare, the other legalized the use of the controversial drug Laetrile for the treatment of cancer. Both vetoes outraged Illinois conservatives, and may hamper Thompson's quest for the Republican presidential nomination. But he has no regrets: "I wouldn't compromise just because it might cost me votes in some conservative sections of the state."

Thompson is considered a shoo-in for re-election this fall, though his likely Democratic opponent, State Controller Michael Bakalis, 39, is no lightweight. He has already started attacking Thompson on the issue of his presidential ambitions. "We have a Governor who plans to get out of the state as soon as possible," charges Bakalis. Other Democrats accuse Thompson of being a "do-nothing" Governor, though his program of "limited goals" seems to be as popular with voters in Illinois as it is with other Americans who are fed up with Government interference and bureaucracy.

But Thompson has put no limits on his own visibility. Outfitted in jeans, T shirt and cowboy boots, he frequently travels around the state with his wife Jayne, 31, pumping hands, slapping backs and exchanging small talk, of which he is a master. He claims that "being Governor is three jobs rolled into one." He occasionally finds time for his hobby of collecting Victorian antiques, but he has virtually given up racquetball, allowing his weight to slide up another 20 lbs., to 220. To enhance his national image, he has hired Washington Political Consultants Douglas Bailey and John Dearthour, and his critics darkly hint that even the Thompson baby due this summer was programmed for maximum political effect. For the record, Thompson refuses to discuss the presidency. Almost. He says it would be "foolish" for him to rule out a try for it in 1980.

Bogged Down. Like Thompson, Jay Rockefeller won in a rout, posting the biggest victory margin (66%) in West Virginia history. Like Thompson, he promised a limited, efficient government. But Rockefeller has had trouble living up to that goal. A balky state legislature, though controlled by fellow Democrats, has shredded some of his major proposals. "His first seven months were a total loss," admits Senate President William Brotherton, a Rockefeller ally. "He's not flamboyant, and that's a drawback. He states the facts like an accountant." Rockefeller



"Big Jim" Thompson dedicating the state community college in East St. Louis, Ill.

Limited goals that are as popular with Illinois voters as they are with other Americans.

ping 1.3 million votes, people wondered if it would be all downhill from there. The government Thompson inherited was on the verge of bankruptcy because of the free-spending policies of maverick Democratic Governor Dan Walker. The statehouse was a shambles because of Walker's incessant feuding with Chicago's Cook County Democratic machine. Yet as Thompson starts his second year as Governor, he is far and away the most popular politician in the state and a reasonable contender for a place on the national ticket in 1980.

The onetime U.S. Attorney who sent more than 300 corrupt officials to jail between 1971 and 1975 has proved equally skilled at politics. The Chicago machine trembled at the prospect of a prosecutor as Governor, but he has allayed their fears. "I made a special effort to get along

add \$100 million to his proposed \$3.45 billion education appropriation. "That was the make-or-break issue in the budget," says Thompson. Thanks in part to higher tax revenues from a reviving economy, he expects to end fiscal year 1978 with a tidy \$85 million surplus.

Thompson also achieved his second goal, a tough new crime bill that imposes minimum sentences for serious offenses. He asked for mandatory imprisonment of from six to 30 years for what he called "Class X crimes," including rape, arson, hard-drug transactions and armed violence of any kind. The legislature watered down some features of the bill but basically gave him what he asked for. Says Thompson: "It's time to put to rest the notion that prisons are for rehabilitation. When they can accomplish that end, it is good. But the primary purpose of prison

does not demur from this judgment, but he likes to remind people, fairly enough, that he still has three years to go in his first term.

Rockefeller did get some key proposals through the legislature. He streamlined the cumbersome state health department, set up an office of economic and community development, and pleased the state's 54,000 active coal miners by upgrading mine safety regulations. But he was forced to retreat on two campaign promises. First, the legislature would not buy his proposal to eliminate the 3% sales tax on groceries. Says John Fanning, chairman of the senate finance committee: "I saw no reason to give sales tax relief and then have to raise other taxes to make it up." Rockefeller's request for \$100 million to improve secondary roads was slashed to \$54 million. He further antagonized his fellow Democrats by refusing to fire thousands of Republicans holding patronage jobs. "Everyone expected

grocery stores. But the storm never came. Ever since, it has sneeringly been referred to as "Jay's blizzard."

Rockefeller may find his second year in office as trouble-ridden as his first. He has proposed 10% pay hikes for state employees, along with tax breaks for people 65 and over. But he has also asked for an increase in the gasoline tax, to 11¢ from 8.5¢, and a hike in the cigarette tax, to 17¢ a pack from 12¢. Complains State Representative James Teets, a Republican: "He talks about improvements in the economy and a growing tax base. This contradicts a necessity for a tax increase."

But Rockefeller has some advantages that may eventually come to his rescue. At the top of the list is a thriving state economy because of the coal boom. Personal income in West Virginia is rising at the eighth fastest rate in the nation. From 1970 to 1977 it doubled, increasing to \$6,068 per capita. The Governor also

High Stakes in Miami Beach

Gambling for a dying resort?

"It's one thing to visit Las Vegas and go on a spree," says Florida Governor Reubin Askew. "It's another thing entirely to drag Las Vegas home with you and set it up in your own community."

That, however, is just what a small but determined group of Floridians would like to do. Advised by Public Relations Whiz Sanford Weiner, 49, the skilled promoter who helped legalize gambling in Atlantic City, N.J., a dozen hotel owners and businessmen in decaying Miami Beach are launching a drive to collect the signatures of 255,653 voters—enough to put legalized gambling casinos on a statewide ballot in November. Says Leon Manne, president of the Miami Beach Chamber of Commerce: "Gambling will turn the economy around faster than anything. It is the quickest solution."

Weiner has already set up a makeshift office in the Marco Polo Resort on Collins Avenue, where many of Miami Beach's hotels are clustered. Under the banner of a LET'S HELP FLORIDA committee, the campaign to collect signatures will begin in two weeks, with a July 31 deadline.

Weiner concedes that even if he rounds up enough signatures, winning the November referendum will not be easy. Legalized slot machines in Florida attracted many gangsters in the 1930s, and illegal casinos flourished in the '40s. It was only the Kefauver committee revelations of widespread criminality that brought reforms in the 1950s. Even now a poll shows only a slim majority of Floridians in favor of legalizing gambling. Weiner, however, is counting on a healthy advertising budget, as much as \$1 million; he spent \$1.3 million in New Jersey.

Leading the opposition is Governor Askew, who defeated a gaming petition drive in 1976, but who leaves office next January. Arrayed with him will be lawmen, the clergy, the *Miami Herald* and many Florida conservatives.

Askew argues that no matter how the gambling law is written, it will attract organized crime, drugs and prostitution "like blood attracts sharks." Agrees Dade County Sheriff E. Wilson Purdy: "Organized crime is south Florida's biggest growth industry. They're all over the place now. Casinos would be a major step toward a complete mob takeover." Adds former Miami Beach Mayor Jay Derner: "The hotel people have it all backward. They must first fix up their places."

Weiner is nonetheless confident: "If a strong effort is made, we can win." The idea's biggest selling point may be that gambling would be limited to a strip of about 20 miles along Florida's Gold Coast—where the hotelmen and others in a once lucrative tourist market see legalized gambling as their last resort.



Jay Rockefeller taking the air (in authentic snow) outside the state capitol. Still the unassuming, engaging antipatency worker who arrived 14 years ago.

a wholesale change in patronage," complains Democratic State Chairman J.C. Dillon. "That's been traditional here for generations." Rockefeller, who has hired outside experts at generous salaries (up to \$55,000, which is \$5,000 more than his own salary) to run some of his departments, replies that he believes in the "non-politicalness of getting things done."

Mother Nature provided Rockefeller with additional problems. Already worried by an exceptionally harsh winter, he was informed last January by the National Weather Service that a monster blizzard was heading toward the state, and issued a warning over the state emergency radio broadcasting system, which had never before been used. Understandably alarmed, people got into massive traffic jams and fought over bread and milk in

has an ability to keep cool. He remains, to a large extent, the unassuming, engaging antipatency worker who first came to West Virginia 14 years ago, a carthumper who chose to stay. His wife Sharon, 33, the daughter of Illinois Senator Charles Percy, is a definite political asset. The lanky (6 ft. 6½ in.) Governor can often be seen playing catch or shooting baskets with their three children in the backyard of the executive mansion, closely watched by the security guards that inevitably attend a Rockefeller.

"Maybe people expected him to solve all their problems right away because he is a Rockefeller," says Brotherton. "He has found out that state government is a give-and-take proposition, and he communicates a lot better than he did at first. He's a bigger man than when he came into office."



Congressman Flood making an emphatic point in his memento-lined office in Washington

Dapper Dan's Toughest Scene

The peacock Congressman is accused of selling influence

In blue-collar Wilkes-Barre, Pa., there is a Daniel J. Flood Elementary School. Close by are a Daniel J. Flood Industrial Park, a Daniel J. Flood Rural Health Center and a Daniel J. Flood Elderly Center. All were named in honor of a theatrically flamboyant Representative who struts around Congress like a peacock. He slicks down his hair with stickum, sports a villainous-looking waxed mustache and favors wildly eccentric clothes—velveteen suits, ruffled shirts, patent-leather shoes and satin-lined capes. But despite his outlandish appearance, Dapper Dan Flood, 74, has amassed immense power in his 30 years on Capitol Hill. As a member of the so-called College of Cardinals—the 13 Appropriation subcommittee chairmen—he can influence a large share of the federal budget and direct as much as reason permits to his constituents' benefit. Or maybe more. He has provided them with millions of dollars' worth of public-works projects over the years, including an interstate highway, hospital and airport.

This week, however, Dapper Dan's colleagues on the House ethics committee will begin a formal investigation into charges that he has been feathering his own nest as well as his district. Committee staffers and the Justice Department are scrutinizing Flood's activities in these areas:

► His efforts in 1972 to enable a chain of California trade schools to retain its accreditation with the U.S. Office of Education and thus continue to qualify for federal funds. Flood's former administra-

tive assistant, Stephen Elko, admitted receiving a \$15,000 kickback from the schools, and was convicted in Los Angeles last fall of bribery, perjury and obstruction of justice. Elko claimed that he received \$25,000 in hush money from Flood's friends. But in exchange for a reduced sentence, Elko agreed to provide evidence against his former boss. According to Elko's account, Flood received \$100,000 in cash and bank stock from the schools and other organizations that obtained federal financing with his help.

► Flood's role in obtaining congressional approval in 1973 of \$10 million for a livestock development project in the Bahamas, a project that was approved over the strong objection of the Agency for International Development. According to Elko, AID officials' misgivings were silenced when Elko suggested that the agency's appropriation might otherwise be "stymied" by Flood in Congress. But the agency did manage to block Elko's attempt to put one of Flood's friends, Bahamian Lawyer F. Nigel Bowe, in charge of the project.

► Flood's dealings with the government of Haitian President for Life Jean-Claude Duvalier. During a visit to the island in 1973, Elko promised that Flood would increase U.S. aid. Within a month of Elko's return home, Congress approved \$23.4 million in economic aid for Haiti, about 2½ times as much as Haiti received during the previous year. In return, says Lucien Rigaud, a prominent Haitian businessman and former aide to Duvalier,

Flood received veto power over which U.S. companies would be hired to set up the aid programs.

► Flood's involvement in the financing of a \$65.1 million, 20-story addition to Philadelphia's Hahnemann Hospital. In 1975, the Department of Health, Education and Welfare rejected the hospital's request for federal funds to build the wing. But Flood bypassed HEW by attaching a \$14.5 million grant for the hospital to a bill appropriating antipoverty funds for the federal Community Services Administration. Later Flood urged the hospital to hire Pennsylvania Congressman Joshua Eilberg's law firm in Philadelphia to arrange a bond issue that raised an added \$39.5 million for the wing. For its work, the firm received a fee of \$500,000.

Flood denies any wrongdoing. Moreover, admits one federal investigator: "If Flood took large sums of money, we haven't been able to trace it so far." Indeed, for all his personal flamboyance, Flood and his wife Catherine live modestly in a small frame house in Wilkes-Barre that is worth only about \$20,000, though they do splurge on a new white Cadillac.

Born in Hazleton, Pa., Flood boxed at Syracuse University and, after graduation in 1924, joined a touring theatrical company. He performed in more than 50 productions, and grew his trademark mustache for the role of a plantation owner. Age and the wear and tear of his long-running performance on the Capitol Hill stage have lately begun to slow the headliner, who used to rock House debates with melodramatic oratory.

But he has not lost his popularity with the folks back home, who still revere him for coming to the rescue of Wilkes-Barre after it was virtually destroyed by the raging Susquehanna River during Hurricane Agnes in 1972. After hearing about the disaster at midnight in Washington, he flew home aboard then Secretary of Defense Melvin Laird's personal helicopter, and declared: "This is going to be one Flood against another." He soon learned that the most critical need was for helicopters to rescue marooned victims. He phoned a top official at the Pentagon and belatedly: "I want those helicopters, and I want them this afternoon. Not tonight or tomorrow. You know, there are an awful lot of people running around the Pentagon looking for stars, but if I don't get help, the only stars they'll see will be the ones in their eyes." The choppers arrived posthaste.

Two days after the storm, in typically bravura fashion, he announced: "I have ordered the Army Corps of Engineers not to permit the Susquehanna to rise another inch." The river rose no further. Afterward, Flood steered about \$1 billion in disaster relief to his district. No wonder, then, that a constituent described him as "the next closest thing to God."

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The Mercedes, the Rolls and the Dasher do have their similarities.

All 3 have dignified interiors, with handsome, thoughtful appointments like reclining bucket seats, remote control outside mirrors and quartz electric clocks.

But finally, there are two particularly impressive dissimilarities. For one, Dasher costs about \$10,000 less than the Mercedes, and about \$39,000 less than the Rolls. Then of course, only the Dasher has a ☺ right there up front. *with automatic transmission

VOLKSWAGEN DOES IT AGAIN



Nabbing the .22-Cal. Killers

The Mafia's Weasel is now the FBI's most valuable informant

A year ago last week, Mafioso Frank ("Bomp") Bompensiero, 71, emerged from a telephone booth near his home in San Diego, and was shot four times in the head and neck. His death was a severe blow to the FBI, since Bomp served both as *consigliere* (counselor) of a Mafia family in Los Angeles and as the FBI's highest-placed informant in the crime brotherhood. To track down his killers, the bureau stepped up its investigation into the murders of at least 20 people, including six FBI informants and potential witnesses, in the past three years. All had been rubbed out with the same kind of weapon used to kill Bomp: a silencer-equipped .22-cal. automatic pistol. Now, TIME has learned, in a major break in the war against organized crime, federal authorities are ready to indict six Mafiosi for racketeering activities, including Bompensiero's murder.

The Government's case will rest largely on the testimony of Jimmy ("the Weasel") Fratianno, 67, once the Mafia's No. 2 man in California and a well-traveled hit man himself. He began helping the FBI in return for protection after a falling out with his former gangland friends. Fratianno is believed by police to have committed up to 16 murders on the West Coast and helped plan others in New York and Ohio. Says one FBI official in Washington: "Fratianno knows what he's talking about. In many of those cases he was right there when the guns boomed."

According to Fratianno, Bompensiero's murder was sanctioned by three Los Angeles Mafia chieftains, Don Dominick Brooklier, Under Boss Sam Sciortino and former Boss Louis Tom Dragna. The killers, says the informant, were Mob Musclem Thomas Ricciardi and Jack Locicero, the present *consigliere* of the West Coast crime syndicate. Another of their associates, Mafia Enforcer Mike Rizzitello, has not been connected with Bomp's murder, but will be charged with extortion in the same indictment. All six will be tried under the federal Racketeer Influenced and Corrupt Organizations Law, which provides penalties of up to 20 years in jail for anyone convicted of engaging in a "pattern of racketeering activity."

Besides giving evidence on the Bompensiero murder, Fratianno has provided the FBI with details of at least ten West Coast gangland slayings since 1951. Most were disciplinary actions aimed at small-fry mobsters. He has also given authorities a firsthand account of the Mafia's Las Vegas rackets. He has described how Chicago Mob bosses demanded \$1 million from an unnamed casino owner. When their regular Las Vegas contact, John Roselli, failed to collect the money, the dons ordered Roselli killed; he was as-



Fratianno at the FBI office in San Francisco
He was present when the guns boomed.

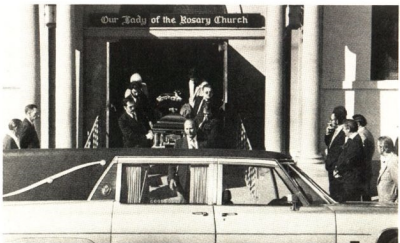
phyxiated in 1976 (Roselli gained notoriety in 1975 when he told a Senate committee that he and another mobster had been recruited by the CIA in the 1960s to assassinate Cuban Premier Fidel Castro). Next, the bosses turned to Rizzitello for help. Just as he began pressuring the casino owner, the FBI, tipped by Fratianno, intervened and scared Rizzitello off. Further, Fratianno has told the FBI that he and his West Coast associates extorted payoffs of up to \$50,000 from another Las Vegas casino owner whenever they needed walking-around money.

Fratianno began his career in crime as a small-time hoodlum and pimp in Cleveland. He moved to California in the

early '40s, and by 1975 had become head of West Coast operations for gangland chieftains in New York and Chicago. Fratianno was indicted last November, along with Rizzitello, Ricciardi and Locicero, for trying to extort \$20,000 from FBI agents who were posing as pornography dealers in Los Angeles. In December, Fratianno and eight other Mafiosi were indicted for the bombing murders of Cleveland racketeer Daniel Greene and his associate John Nardi.

Always a feisty, swaggering type, Fratianno in recent years offended other California Mafiosi by strutting around as if he were the boss. He also angered Chicago Mafia Chief Joseph Aiuppa by violating Mob etiquette. Twice last year Aiuppa had to intercede to halt the greedy Fratianno's attempts to extort money from underworld associates. In December, Chicago Mob bosses finally decided to get rid of him for good. FBI agents spotted henchmen of Chicago Triggerman Tony Spilotro skulking in the bushes near Fratianno's house near San Francisco. When the agents warned him that his life was in danger, Fratianno decided to turn informer. Now he is in the protective custody of U.S. marshals, and the Mob has set a \$100,000 bounty on his head.

In return for Fratianno's testimony in Bompensiero's murder, the Justice Department will probably drop its indictments against him and enroll him in an exclusive group of turncoat gangsters who have been given new identities, jobs and homes. Says one official: "He could really clear up a lot of questions and open a lot of doors if he were to open up completely. Fratianno could be one of the most valuable informants ever. He met all the right people in Chicago, Cleveland, New York, Miami. He touched all the right bases." Thus the Weasel can demand—and get—almost anything within reason, as long as he keeps talking.



Bompensiero's casket being carried from a San Diego church after his funeral
An insider's tales of extortion, murder and gangland revenge.



Somali insurgents, armed with automatic weapons, in the Ogaden desert of eastern Ethiopia



Mengistu at mass rally in Addis Ababa square

World

HORN OF AFRICA

Ethiopia Goes on the Attack

With a little help from a strange assortment of friends

What has suddenly become the world's hottest war is raging in the Horn of Africa between the Ethiopian army and Somali guerrillas who are backed by their ethnic cousins in the Somali Democratic Republic, and the tide of battle changed dramatically last week. Five months ago, the Somali guerrillas had all but driven Addis Ababa's forces out of the Ogaden desert (see map), an Ethiopian region inhabited largely by Somali nomads. Now Ethiopia has launched a spirited counterattack to regain the Ogaden—and perhaps drastically upset a complex balance of forces throughout the entire region.

What has transformed the Ethiopians from losers into almost certain winners has been the arrival since mid-December of the most imposing arsenal of military equipment that the Soviet Union has assembled anywhere outside the Communist world: \$900 million worth of tanks, field guns, rockets, radar, artillery, mortars and missiles. To help with the hardware, and otherwise shore up the sagging Marxist military regime of Lieut. Colonel Mengistu Haile Mariam, Moscow has also provided Addis Ababa with a polyglot army of soldiers and technicians. According to Western intelligence reports, the roll includes 1,000 Russians, 3,000 Cubans (of whom 2,000 are believed to have been involved in last week's fighting),

1,000 or so troops from the radical Arab state of South Yemen and perhaps 2,000 East Germans, Czechoslovaks, Hungarians, Poles and Bulgarians (see box). In addition, the Ethiopians are still assisted by about 40 Israeli technicians, who help to service military planes and install and operate electronic communication and surveillance equipment.

It is the massive Communist aid that has made the difference in the fortunes of war. For weeks, some 25 Soviet naval vessels have been standing by in the Red Sea off Eritrea province, where the Ethiopians are fighting a civil war against three liberation fronts. The Russian flotilla is presumably there to protect a Soviet sea lift to the Ethiopian-held port of Assab. Meanwhile, the Ethiopian air force, probably assisted by Cuban pilots, has been conducting bombing raids on the Somali city of Hargeisa and the port of Berbera, where the Soviets had a missile and naval base until the Somalis ousted them last year. The offensive began last week when Ethiopian armored columns, spearheaded by Soviet T-54 tanks, poured from the strongholds of Harar and Dire Dawa. Air cover was provided by MiG-21s and American-made F-5s left over from the days when the U.S. was Ethiopia's chief arms supplier.

By week's end the Ethiopians were reported to have swept 20 miles to Babile

and taken positions to the south and east of Jijiga, from which they had been driven last August. The Somalis admitted that their forces in the Ogaden were in a "tactical retreat," and on Thursday the Mogadishu government called for general mobilization "in the face of a threatened Ethiopian invasion."

"The first pivotal point," reported TIME Nairobi Bureau Chief David Wood from Addis Ababa, "will come if the Ethiopian thrust breaks through the barren Karamarda Mountains, which lie across the line of advance some six miles west of Jijiga. For thousands of years, armies on both sides have stood off invasions here. And it is here that the Ethiopians fled in the face of the Somali advance."

From Jijiga, the Ethiopians could easily sweep another 95 miles to the Somali border. The big question is: What will they do when they reach that frontier? One member of the Ethiopian junta told Wood: "I can assure you that Ethiopia is not going to invade Somalia." Nonetheless, the Somalis are fearful that the Ethiopians if they reconquer the Ogaden will not be able to resist the impulse to slice through northern Somalia to the sea.

Thus the Ogaden, a wasteland traditionally forsaken by all but a few thousand nomads, has become the center of an international crisis. The Soviet Union, having lost out in Egypt and Somalia in

recent years, is making a high-stakes play for Ethiopia. With its Communist help, the Addis Ababa junta (known as the "Dergue") has a strong chance not only of defeating the Somalis in the Ogaden, but also of strengthening its position against the Eritrean secessionists, whose guerrilla forces control most of that province. The Soviet press has attacked Somalia as a bastion of reactionary forces, even though the country was until lately one of Moscow's most cherished Third World allies. Recent visitors to Moscow have included Cuban Defense Minister Raúl Castro and Premier Ali Nasser Mohamed of South Yemen, which has become a refueling and staging point for the Soviet airlift to Ethiopia.

By the greatest of ironies, one of Moscow's associates in the Ethiopian adventure is Israel, whose friendship with Addis Ababa dates from the 1950s (if not, as some Israelis note, from the days of King Solomon's celebrated dalliance with the Queen of Sheba). The friendship is maintained today because predominantly Christian Ethiopia remains the only non-Arab power in the area, and the Israelis are hoping to retain a foothold there.

Saudi Arabia and Iran, on the other hand, are determined that the Soviets should not expand their power center in



the Horn of Africa and are prepared to help defend Somalia against any invasion. Last month King Khalid and the Shah of Iran met in Riyadh. Saudi Arabia, and agreed on joint action in the Horn, including the sending of French-made tanks to the Somalis.

Through all this, the U.S. has been

caught in something of a dilemma. It is anxious to show its friendship to the Somalis, but is also reluctant to provide aid while they are involved in their Ogaden adventure, which is, strictly speaking, an invasion of a neighbor's territory. In Washington last week, U.S. Secretary of State Cyrus Vance said: "We have received assurances [from the Soviet Union] that the Ethiopians would not cross the border. I hope and expect that [these assurances] would be carried out." He added that the U.S. would reconsider its policy of not supplying arms to either side if Somalia was invaded.

Moscow's gamble is that Ethiopia, with its 29 million people, will prove to be a more valuable base than little Somalia (pop. 3 million). That may well be true, but Ethiopia remains dangerously unstable; without the Soviet and Cuban iron grip, the Mengistu regime could fall at any time. In Addis Ababa, as many as 1,000 people have been killed since November in an officially sanctioned campaign of violence that government officials describe as "justifiable terror." Every night members of a counterrevolutionary group of so-called white terrorists are slain in the streets. One day last week a young man lay dead on a sidewalk near the city's busy marketplace; to his chest was pinned a note warning citizens of the dangers of dissent.

Moscow's Helping Hands

"Doing the Kremlin's dirty work" is the way one Western intelligence official refers to them. Another labels them "Moscow's cat's-paws." These derisive descriptions refer to Communist countries that are busily reinforcing Soviet support for Ethiopia with sorely needed arms as well as military and political expertise.

Cuba has been the most prominent of Moscow's proxies, with 3,000 troops in Ethiopia, 19,000 in Angola and about 4,000 in nine other states. In recent years other Communist-ruled nations—most notably in Eastern Europe—have dispatched elite units to black Africa to serve Soviet foreign policy interests. Presumably, this strategy has been designed to help Moscow maintain a low profile and thus escape being branded a neomperialist.

The efficient and ideologically rigorous East Germans have apparently been selected as the most trustworthy ally. First sent to Ethiopia last summer, East Germany's forces there now number an estimated 1,000. Senior East German officers assigned to the Ethiopian Defense Ministry helped to reorganize the country's armed forces, and no doubt have contributed to the planning of the current offensive. Other East Germans have been advising the Ethiopians on the military and ideological training of the police, militia, regular armed forces and youth groups. A hard-lining East Berlin Politburo member, Werner Lamberz, headed a delegation that advised Addis Ababa about reconstructing the country's economy on orthodox Marxist lines.

The army and secret police of nearby South Yemen have been learning the latest security techniques from some 2,000 East Germans, assisted by about 4,000 Cubans, some of

whom also seem to serve as a kind of Praetorian Guard for the country's repressive Premier Ali Nasser Mohamed. East Germany is also believed to be running three training camps in South Yemen for radical Palestinian commandos. East Berlin has dispatched "Brigades of Friendship," consisting of military, ideological, security and medical cadres, to Angola; in Mozambique, the East German "diplomatic" mission has become the largest in the country, exceeding even that of the Soviet Union. East Germany's increasingly complex African operations are now handled by a special secretariat in East Berlin, headed by Deputy Minister of Foreign Trade Alex Schalk.

Hundreds of Czechs, Hungarians, Poles and Bulgarians are also aiding Ethiopia's forces. Technicians from Prague and Budapest have supervised the arrival of large quantities of weapons, such as AK-47 automatic rifles and machine guns, made by Warsaw Pact countries. Transporting arms and men from Eastern Europe to Ethiopia formerly presented only minor problems, since they were flown from their staging area in Libya over an unsuspecting Sudan. Until they were expelled in May, Russian advisers in Khartoum had tampered with the Sudanese radar network to create a blind spot in its coverage; in effect creating a "corridor" through which Soviet planes flew undetected.

Ominous though the Soviet presence in Ethiopia may be, Moscow may yet bungle this political opportunity as it has bungled others. Despite heavy political and military investments in Ghana, Egypt and Somalia, the Russians were ultimately tossed out of those countries. They and their cat's-paws may start to suffer if the war on the Horn begins to exact a toll. According to intelligence reports, Cuba's military presence abroad is now so unpopular that troopships must leave Havana at night.

World

FRANCE

A Schizophrenic Campaign

Despite center-right warnings, the voters still lean left

With elections only a month away, France's bleak wintry landscape was suddenly abloom with bright billboards last week. The most striking campaign poster was one showing a sturdy tree with a caption calling for CONFIDENCE IN BARRE. The tree referred to a celebrated comparison made by Premier Raymond Barre, who had likened his efforts to boost the French economy to nurturing a tree. "Obstinately but durably, the tree grows little by little," Barre assured French voters. On the other hand, Socialism and Communism blow in like a "typhoon," wreaking havoc in the whole forest.

According to the polls, however,

the franc took a dizzying plunge on European money markets as a result of what Barre termed "psychological factors explained by political uncertainty."

Although the franc rallied last week, it continued its headlong flight abroad. Mitterrand claimed that 500 billion francs (\$100 billion) have been illegally exported to Switzerland. Though the claim was exaggerated, more and more apprehensive citizens were getting their money out of the country or hoarding gold—the Frenchman's historical hedge against political uncertainty. Most popular were the one-kilo ingots (currently worth \$5,738), which fit nicely under mattresses, and the

and housing—63% responded affirmatively. Questioned about what sort of political and economic system they wanted to live under, 46% favored France's present market economy, 15% expressed a preference for American or Swiss free enterprise systems, while 21% liked West Germany's social democracy. Only 6% were tempted by Soviet or East European Communism.

If the electorate was schizophrenic, so, in a way, were France's main political parties. The split between Communists and Socialists on how to update the Common Program has not been papered over. Mitterrand has said that he will invite the Communists to form a coalition government if the left wins a parliamentary majority, but there is evidence that the Socialist rank and file is displeased at such a prospect. When the leftist weekly *Le Nouvel Observateur* asked Socialist voters what sort of government they wanted after the elections, only 28% opted for a pact with the Communists, while 64% favored a Socialist government without Communists. Moreover, 32% said they would be willing to accept an alliance with the center-right—a proposal that Mitterrand rejects absolutely.

Last week Communist Party Boss Georges Marchais backed away from his threat not to participate in a Socialist government. Fearing that his party would be swamped by the Socialists—the latest poll gives the Communists 20% of the popular vote as against 28% for the Socialists—Marchais had warned last month that he might refuse to support the Socialists. Last week Marchais was claiming that the Socialists had promised him "six or seven" Communist ministers in any government that Mitterrand might form. When Mitterrand denied such numbers had been discussed, Marchais retorted that "it is a lie to pretend otherwise."

Meanwhile, President Valéry Giscard d'Estaing and Paris Mayor Jacques Chirac were patching up their differences. Responding to Chirac's criticism that he had not been putting his full presidential weight behind the Gaullist leader's tireless campaigning, Giscard made a major speech backing the Gaullist effort. Although Chirac has repeatedly accused Giscard of conspiring to shove his 550,000-member party aside in favor of three small non-Gaullist parties, he has moderated his tone. At week's end Chirac led a huge rally in Paris that was designed to inspire fresh hopes among members of the center-right coalition. Radiating a confidence not shared by many of his followers, Chirac appeared on television beforehand to assert that his Gaullist party would prove to be the presidency's "most solid, loyal and faithful source of support." But Giscard may need far more than those assurances if the center-right is to catch up with the left's lead in the crucial weeks ahead. ■



Gaullist leader Jacques Chirac addressing voters in Toulouse

A plea from "the most solid, loyal and faithful source of support" for the presidency.

many Frenchmen regard a leftist victory in the March parliamentary elections as a welcome breath of spring rather than a fearful typhoon. A survey appearing in the newsmagazine *Le Point* this week shows that 52% of the electorate would vote for the leftist parties as against 44% for the center-right. One top Gaullist leader even believes that the left might well reach 55% by election time. If that happens, Socialist Leader François Mitterrand would almost certainly become Premier—and France would face the possibility of having Communists in Cabinet posts for the first time in 30 years.

France's business community was showing signs of profound alarm at the prospect. Capital investment has come to a virtual standstill because of business worries about the sweeping nationalization programs advocated by the Socialists and Communists in their ill-named (the two parties still differ greatly as to the details) Common Program. Two weeks ago,

small \$62 Napoléon d'Or and minuscule \$46 demi-Napoléon coins, which can be conveniently secreted—and transported—in the traditional sock. In the past month, bidding for gold has brought the price to a near record \$188 per oz. on the Paris market.

It is difficult to assess why so many voters favor a leftist victory, which almost certainly will lead to political instability, heightened social tensions, troubled international relations and economic deterioration. Indeed, in many ways, France is better off than most of its European neighbors. Under the guidance of Economist Barre, France's rate of G.N.P. growth has been higher than West Germany's during the past year. Inflation, at 9%, is lower than Italy's 12%. Unemployment has been brought down to 4.6% from 5.5% last August. When the conservative Paris daily *Le Figaro* asked a sampling of citizens if they were satisfied with their way of life—income, jobs

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World

BRITAIN

Mrs. Thatcher's Bold Gamble

Immigration and racism become campaign issues

A funny thing happened to Margaret Thatcher on the way to No. 10 Downing Street: the economy and political mood of Britain underwent a sea change. Less than a year ago the Tories were running 21% ahead of Labor in the polls, and Conservative Leader Thatcher was the odds-on favorite to become her country's first woman Prime Minister. Now the two parties are in a dead heat, and Prime Minister James Callaghan is more popular than his party while Thatcher lags behind hers.

Callaghan's main accomplishment

a "clear end to immigration," on the ground that "people are really rather afraid that this country might be swamped by people of a different culture. And, you know, the British character has done so much for democracy, for law, and done so much throughout the world, that if there is any fear that it might be swamped, people are going to react and be rather hostile to those coming in."

Until that point, only the maverick former Tory Enoch Powell and the small, neo-Fascist National Front had dared to stir up the fears of those who object to

issue of particular appeal to traditionally Labor blue-collar workers, who see the immigrants as a threat to their jobs, and to a large segment of the British public who resent the intrusion of a different culture.

Home Secretary Merlyn Rees calls Britain's immigration problems "the legacy of imperialism." The current furor is not aimed at the shrinking number of West Indian black immigrants (600,000), but at the larger influx of Indians and Pakistanis (1.3 million), who began arriving in the late 1950s. Ironically, Tory governments passed the laws that granted amnesty to those who had been in the country illegally for more than five years and gave them British citizenship rights.

Immigrants from the subcontinent have formed London's biggest Asian com-



Callaghan with grandson of Indian President Sanjiva Reddy
More popular than his party and she lags behind hers.



Thatcher on walking tour of London's Petticoat Lane
After a walkabout came the politically unthinkable.

has been to turn the economy around, a feat that was aided by both the expected gush of North Sea oil and his success in holding the line on wages. According to Gallup, the electorate now believes that Labor can do a better job than the Conservatives in controlling inflation. Even such a stalwart establishment organ as the *Financial Times* praised Callaghan for giving Britain "almost as good a conservative government as we are likely to get."

With national elections approaching, Mrs. Thatcher undertook a highly public effort to reach out to the common folk. She turned up for a walkabout along Petticoat Lane, London's celebrated street market, where she was bussed by a local huckster. But she also needed a popular issue, and so she did what had hitherto been politically unthinkable: she injected the explosive issue of immigration, meaning race, into the campaign. In a television interview, Mrs. Thatcher called for

the presence of 1.9 million "coloreds" in Great Britain (total pop. 54 million). Thatcher's statement touched off an uproar in Parliament. Labor members shouted "Racist!" There was some dismay in the Conservatives' shadow cabinet, whose members had not been consulted about the declaration, but other Tories applauded her stand, gleefully dubbing her "Thatcher, the Vote Snatcher." Callaghan accused her of "opportunism," while one Cabinet member despaired: "I have no doubt that race can win the election."

Even before the Tory leader spoke out, another Gallup poll showed that 59% of the British public felt that immigrants were "a very serious social problem in Britain today." To 46%, race relations were getting worse, while 49% wanted the government to offer immigrants financial help to leave the country. Unquestionably Mrs. Thatcher had seized an

munities, at Hounslow and Southall, in ear-aching proximity to Heathrow Airport, where they first set foot on British soil. Many found service jobs at the airport, saved their money and brought over their families. The Indians and Pakistanis also brought different languages, religions, styles of dress and mores. Steak-and-kidney pies have given way to curries in some neighborhood shops; saris, turbans and mosques have become distinct features of the English cityscape. But none of the customs has been more inflammatory or more misunderstood than the subcontinent's tradition of arranged marriages. Under present laws, immigrant parents can bring into Britain suitable young men or women from their native lands for their sons or daughters to marry. As one London housewife put it: "Nobody can convince me it isn't a racket, whatever the Indians say."

Statistically, at least, the issue appears

World

less of a problem than the public outcry suggests. The government last year issued only 391 work permits for males from the subcontinent. The best estimates are that at the present rate of immigration, the coloreds by the end of the century will still be only 5.5% of the British population. As for the popular fear of a hordelike bridegroom brigade, out of a total of 11,061 men permanently admitted to Britain in 1976 as fiancés or husbands, only 3,612 were Indians and Pakistanis. Ian Martin, director of the Joint Council for the Welfare of Immigrants, believes that those numbers will taper off even more as Asian girls in England rebel against the idea of marrying unknown boys from their fathers' native villages.

Since the National Front has proposed expulsion of the immigrants, Callaghan and Rees understandably challenged Mrs. Thatcher to say just how she planned to end immigration without abrogating Britain's legal commitments. TIME has learned that the Tories have drawn up several new proposals on immigration. The major points: 1) virtually a total clampdown on admission of fiancés, 2) a register to be compiled of all remaining direct dependents of immigrants already in Britain, with a strict quota system for entry of those dependents, 3) citizenship granted "only in the most exceptional circumstances" for those who entered the country after 1973, and 4) repeal of the amnesty granted illegal immigrants in 1973. The latter point, some Conservatives indicate, does not mean uprooting those already settled, but it would deny them the right to bring in wives or children.

Meanwhile, the Conservatives have made another move toward winning votes from Labor: they have backed away from bipartisan support of the concept of power sharing between Protestants and Catholics in Northern Ireland. The Tories have also raised the possibility of changing laws that give instant voting rights to Irish immigrants. Labor M.P.s from industrialized areas admitted that the anti-Irish swipes would go down well in the British Midlands. "Margaret is desperate," protested a Labor Cabinet Minister. "She wants to be Prime Minister—by any means."

But Callaghan has plenty to fight back with. Last week the Prime Minister reaped a substantial political bonanza with some favorable economic news. Britain's mine workers agreed to go along with the government's 10% limit on wage increases; the pound, already surging, rose another half a cent; and key Labor economists projected a drop in the inflation rate (13% in November) to 7% by July. One pollster believes that the party may also pick up a large block of new votes in the next election from the traditionally apolitical Asian immigrants. His prediction: "They are going to crawl over broken glass to vote against Mrs. Thatcher." ■



Israeli soldiers attacking a Palestinian village in 1949 during the war of independence

ISRAEL

Untimely Story

A TV blackout of history

"Hail a Jewish Hirbet Hizba. Who will ever recall that once there was a Hirbet Hizba, which we exiled and inherited. We came, shot, burned, blew up, pushed and exiled. What the hell are we doing in this place? Will the walls not scream in the ears of those who will live in this village?"

The speaker is never identified, but his words have moved Israeli readers ever since the appearance in 1949 of a novella called *The Tale of Hirbet Hizba*. The story, by now an Israeli classic, deals with the cruel behavior of a Haganah unit ordered to drive Arab inhabitants out of their village in Palestine during the war of independence. Written by Yizhar Smilansky under the pen name S. Yizhar, the story focuses on a young soldier's wrenching self-doubt as he obeys the brutal command to clean out Hirbet Hizba.

Smilansky was a Haganah intelligence officer in that war, and the fictional village of Hirbet Hizba was patterned after a real community where he witnessed similar events. The novella thus deals with a dark side of history that many Israelis would prefer to forget. One of the country's best-known authors, Amos Elon (*The Israelis: Founders and Sons*), describes Smilansky's work as "perhaps the most conscience-stricken, deliberately guilt-ridden piece of contemporary Israeli literature." *Hirbet Hizba* is required reading in Israeli high schools and has been translated into Arabic. Last week, however, when Israel's national television network scheduled a filmed version, the showing was canceled 90 minutes before air time by Education and Culture Minister Ze'evulun Hammer.

Hammer, 42, is a founder of *Gush Em-*

unim (Group of the Faithful), the nationalistic religious organization that has pushed hard for the expansion of the Israeli settlements in captured Arab territory. Hammer acted after receiving complaints from two members of the Israel Broadcasting Authority's board of directors that the screening was untimely, given the negotiations under way with Egypt. But the unprecedented cancellation of a TV show prompted protests of censorship from a coalition of artists, authors, lawyers, Knesset members, journalists and TV technicians. TV newsmen vented their feelings by letting Israeli screens go dark for 45 minutes on the day after Hammer's order. An evening program by Israeli singer Shalom Hanoch, as a result, was lost.

In the Knesset, free-speech advocates decried Hammer's decision, while conservatives supported it, regardless of party. The expulsion of the Arabs, said the Labor Party's Amos Hadar, "is the heart of the [Middle East] problem. The film will be a weapon in the hands of Arafat." Said Kalman Kahane, a member of the Poalei Agudat Israel religious party: "I'm definitely for democracy. But when there is an excessive democracy which harms the state's interests, I'm ready to put up with some sort of limitation."

Though Israel's press and TV are routinely subject to military censorship, the *Hirbet Hizba* incident marked the first time a fictional work had been suppressed for political reasons. Premier Menachem Begin defended Hammer's decision, but Author Smilansky was irate. "I didn't write this story as a conflict between Jews and Arabs," he insisted. "I wrote this as a man who was hurt by what he saw. This story is about Israel, it's about Viet Nam, it's about any place where someone is suddenly caught in war. Instead of covering up what happened, we must atone for it." ■

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Costa Rica: Winner Carazo (center) mobbed by supporters before election



Nicaragua: Grim national guardsmen on duty at polling place

CENTRAL AMERICA

Costa Rica Shows How, Again

One way to defend democracy: get rid of the army

"What is this? Carnival?" marveled an American tourist in Costa Rica's flag-bedecked capital, San José. It sure sounded that way. All day long, happy motorists jammed the main drag, Central Avenue, while tapping out *beep-beep-beep*, *beep-beep-beep* on their horns. Thousands of other Ticos, as Costa Ricans call themselves, danced joyously in the streets. It was not Carnival, however, but a bash celebrating another honest election in a part of the world where political honesty and elections are all too rare.

In Costa Rica's seventh peaceful presidential race in the past 25 years, an underdog candidate scored a stunning upset against the dominant party. San José Economist Rodrigo Carazo, 51, running under the banner of the center-left Unity Party, managed to snare a shade more than 50% of the 755,000 votes cast; he edged out Luis Alberto Monge, the candidate of the long-ruling National Liberation Party, who got just under 49%.

Carazo said that the results confirmed an "enormous desire for change" in the mountainous, West Virginia-sized republic. Indeed, the election proved that Costa Ricans not only wanted a change but were assured of getting it at the ballot box—something voters in other Latin American countries cannot always count on.

During the campaign, Carazo attacked the ills that had accumulated during eight years of National Liberation rule, including proliferating bureaucracy, reckless government spending and creeping socialism. Another issue was outgoing President Daniel Oduber's connections with Robert L. Vesco, the expatriate U.S. financier who fled to Costa Rica in 1972

to avoid facing U.S. charges of embezzling \$224 million from a Geneva-based mutual fund he controlled. Carazo vowed to have Vesco expelled "for the nation's health." But Carazo's victory mostly reflected the voters' concern about the danger of *continuismo*, the permanent entrenchment in power of the Liberation Party if it was not turned out for a spell.

The party has dominated Costa Rica's political life since 1948, when Party Founder José ("Pepe") Figueres beat back an attempted Communist coup that was launched on the issue of a fraudulent election. Subsequently, Figueres and Successor Oduber pushed through laws that have made Costa Rica what Ticos believe to be an almost tamper-proof democracy.

Institutionally, the key to the Costa Rican electoral system is a five-member group of independent jurists known as the *Tribunal Supremo de Elecciones*, or T.S.E. Six months before voting day, and after the parties have made their nominations, the T.S.E. takes over the election machinery and assumes operational control of the country's 6,000 civil and rural guards; on election day, it dispatches some of the guards to the polls to maintain order but confines the rest to their barracks. The tribunal also oversees a highly refined campaign-financing system. Before the campaigning begins, the treasury distributes funds to the parties according to a formula based on the number of votes they got in the previous election; one of Carazo's triumphs was the fact that his Unity Party managed to win even though, at \$353,000, its campaign kitty was one-seventh as large as the Liberation Party's.

As for the election itself, the T.S.E. not

only flashes the results on TV and radio the instant they come out of the computers—the better to prevent fraud—but also recounts the ballots afterward.

Besides all this carefully tended electoral machinery, Costa Rica has some advantages that help it maintain its allegiance to democracy. For one thing, political divisions are not sharp in a country that has achieved broad literacy (90%) and an average per capita income (\$1,100) that is the highest in Central America. Costa Rica also benefits from a productive influx of European immigrants and a vigorous middle class.

The same advantages could be applied to Chile, Argentina or Uruguay, of course. What sets Costa Rica apart is the fact that, outside of a McHale's Navy consisting of three gunboats, it maintains no armed forces beyond the civil and rural guards. That largely precludes the possibility of any man on horseback seizing power by force. With no external enemies or guerrilla problem to deal with, Costa Ricans feel no need for armed muscle. Shrugs Foreign Minister Gonzalo Facio: "If we spent money on arms, we would probably have a smaller per capita income."

It is, of course, inconvenient not to be able to fire a 21-gun salute when a foreign chief of state visits San José. But the Ticos have another way to do the honors: when a distinguished guest is expected, squads of schoolchildren are dispatched to the airport to sing songs of welcome.

■ ■ ■
If Costa Ricans needed any reassurance about the health of their political system, they had only to look at another, much different election that occurred last week in neighboring Nicaragua. Instead of crowds dancing in the streets, there were sullen troops guarding polls from which Nicaraguans chose to stay away in droves. The election, which was for municipal offices, was the setting for a grim

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World

confrontation between President Anastasio Somoza Debayle, 52, and an odd but increasingly potent anti-Somoza coupling of radical guerrillas of the Sandinista movement and conservative Nicaraguan businessmen. Together the groups intend to bring Somoza down and end 42 years of dictatorial Somoza family rule.

Though anti-Somoza forces in Nicaragua have long been active, the agitation against the third in the line of family dictators increased dramatically last month following the still unexplained murder of *La Prensa* Editor Pedro Joaquín Chamorro, a longtime Somoza foe. In protest, business groups launched an employers' strike, and they and other dissidents urged voters to boycott the elections. No fewer than 52 candidates pulled out of the campaign, and only a third of Nicaragua's 700,000 voters cast ballots. Somoza's candidates won, but the extent of the boycott was one more sign that his days as President might be numbered.

The political predicament is equally difficult in the three other tiny nations that, with Costa Rica, Nicaragua and the British crown colony of Belize, comprise Central America:

► In Guatemala, voters will go to the polls on March 5 to select a successor to General Kjell Eugenio Laugerud, 48, a take-charge officer who has run the country since 1974. The election will offer limited choices. Besides General Ricardo Peralta Méndez, who directed reconstruction after the country's savage 1976 earthquake and is the candidate of the powerful Christian Democratic Party, the field includes one other general and a colonel.

Barring an upset, probably General Romeo Lucas García, a former Defense Minister, will win. In any case, Guatemalans classify their elections almost like French wines: '66 and '70 were fairly honest years, '74 was widely regarded as a fraud. On that basis, '78 is apt to be an interesting, possibly violent year.

► In Honduras, the President, General Juan Melgar, 48, took power in a barracks coup three years ago and has since run the country by decree. Last month Melgar announced that he would convene a constituent assembly in 1979 to "reform" the constitution. This could eventually lead to the election of a civilian President. It could also lead to the constitutional ratification of what Melgar seized by force.

► El Salvador will not choose another President until 1982, which, as many Salvadorians see it, is just as well. Before the rigged election that brought General Carlos Humberto Romero, 51, to power in 1977, more than a hundred people were slain by Romero's soldiers in campaign violence. Congressional elections are scheduled for next month, but the anti-Romero Christian Democratic Party has announced a boycott. Power, as a result, will remain in the hands of the soldiers and the few rich families that have wielded it for generations. ■

LAOS

Thorns Appear in Lotus Land

The Pathet Lao builds a harsh new world

For centuries Laos was a sleepy country of rice fields, water buffaloes and a notably pacific people who seemed to find little to fault in their fertile lotus land. But two decades of civil war and three years of Communist rule have taken the bloom off. Under the Puritan discipline of the Pathet Lao, who seized control in 1975, the gentle life of the Laotians has undergone a harsh transformation.

Nowhere is this more evident than in Phong Saly province, a remote region that juts into southern China. There, the Pathet Lao have set up prison camps for "enemies of the state" that seem like something out of Solzhenitsyn: their heavy log walls are covered with barbed wire and bordered with sharp bamboo stakes; beyond, there is nothing but dense jungle and forbidding mountains. "You can try to escape," the guards taunt their charges, "but we'll have you back here within seven days."

This jungle Siberia is the maximum-security wing of a detention system that may give Laos the sad distinction of having more political prisoners per capita than any other country. By the regime's own reckoning 40,000 Laotians (out of a population of 3.4 million) have been herded off to "re-education camps." Most of them are former army officers and "rightist" officials linked with the old pro-U.S. government, and, at least in theory, they can look forward to release after they have learned their lessons.

But the regime's figures do not include 12,000 unfortunates who have been packed off to Phong Saly. There, no pretense at re-education is made. As one high Pathet Lao official told Australian Journalist John Everingham, who himself spent eight days in a Lao prison last year, "No one ever returns."

Those who wind up in Phong Saly are accused of specific crimes, although the charges may be as vague as being a "spy" or a "reactionary." Since Pathet Lao soldiers have been given blanket permission to charge just about anyone and no trials are necessary, many Laotians have been banished to Phong Saly for little reason. Among others sent to the camps: Khong Khetsakhorn, a machinery operator whose crime was to have worked on USAID construction projects, and Ut Philaphandeth, a scion of an important Laotian business

family, who was accused of harboring "a nest of spies."

The only prisoners known to have walked away from Phong Saly are five of a group of 15 Thai nationals released from Laotian jails last month as a gesture of reconciliation. They tell a grim tale of forced labor, undernourishment and disease. Said one: "We were so thin, so hungry that we even tried to roast toads. We pleaded for medicine, but the doctor wouldn't give us any. We thought we would die." Others told of three prisoners thrown into tiger cages for having killed and eaten a guard's dog; one Thai claimed that disease had killed at least

JOHN EVERINGHAM



Inmates learning to weave at a re-education camp And for "spies" and "reactionaries," a jungle Siberia.

10% of the 600 or so inmates at his camp.

The Pathet Lao's plans for Phong Saly appear to be patterned on what the Vietnamese Communists euphemistically call a "new economic zone," a remote area where primitive agriculture can absorb a large population of political exiles who are there to stay. Inmates in other parts of the Lao gulag may also be sinking some unwanted permanent roots. Many who were shipped off to re-education centers two years ago are still there, and some prisoners' wives have been warned to pack up and join their husbands if they ever want to see them again. The Pathet Lao's reluctance to let its captives go is understandable: of 16 prisoners released from the Vieng Sai re-education camps in 1976, more than half eventually fled across the Mekong River into Thailand. ■

World



Ben Bella and Boumedienne in 1962

ALGERIA

Gilded Cage

Ben Bella lives

When France finally gave Algeria its independence in 1962 after an eight-year guerrilla struggle, Ahmed ben Bella, an exiled freedom fighter known to his countrymen as Amined (Invisible One), surfaced after almost six years in French jails and quickly assumed control of the new nation. Three years later he vanished again, deposed in a bloodless coup by his army chief, Houari Boumedienne.

Ben Bella is still invisible, but now he is living in enforced leisure under the careful eye of Boumedienne's guards. The man Boumedienne regarded as an impossibly fuzzy-minded romantic who was leading Algeria to economic chaos is now 61 and, by all accounts, the very model of a prosperous bourgeois. Housed in comfortable, well-staffed villas, he is provided with every comfort. The amenities include French newspapers and the latest Georges Simenon detective stories, as well as at least one movie a week (his favorite, which he has seen eight times: a Jean Gabin-Sophia Loren film called *Le Verdict*). To keep him from settling in anywhere, however, the Boumedienne regime changes his location from time to time, secretly and without warning. Ben Bella is allowed visitors, but they are screened beforehand and taken to his home blindfolded.

One person who never comes to visit the former leader is Boumedienne himself. Why then does Algeria's austere second President keep the fallen strongman alive? "A dead Ben Bella would endanger everything," says one of the Invisible One's friends. "He's still a hero to a lot of people in this country. He lost out, but that's no reason to kill him. This isn't Uganda."

ESPIONAGE

The Mounties Get Their Man

And the KGB loses out in a double-agent sting

It was designed as a textbook cloak-and-dagger intelligence operation. Clandestine meetings were arranged by passing filmed instructions that were stuffed inside a hollow stick or in a specially designed pack of Marlboro cigarettes. There were coded passwords and complex secret-signal systems. Using these elaborate precautions, the Soviet mission in Ottawa must have felt secure as KGB agents within the embassy seemed to have recruited a spy from Canada's equivalent of the FBI, the Royal Canadian Mounted Police. For nine months, in fact, a Mountie had pocketed KGB bribes totaling \$30,500 in exchange for what appeared to be highly sensitive information.

Last week the plot blew up in the KGB's face. Thirteen Russians, most of them diplomats in Ottawa, were unmasked as spies and banned from Canada. It was clear, moreover, that from the start it was the Mounties who had been fielding the classic textbook operation: a sting by a double agent. The KGB appeared so deceived by the Mounties' ruse that one astounded Canadian official said, "One wonders—do they assign their better people here? They seem to have been incredibly crude, gauche and maladroit."

Announcing the expulsion to the House of Commons, Donald Jamieson, Secretary of State for External Affairs, said that an unnamed Mountie was approached in early 1977 by two Soviet diplomats (one of whom he knew from a previous assignment). The officer was offered "an unlimited sum of money" to provide profiles of his R.C.M.P. colleagues and information about the force's counterespionage operations.

The Mountie immediately told his superiors about the offer. He was instructed to take the money, turn it over to the government and, according to Jamieson, begin passing "carefully screened nonsen-

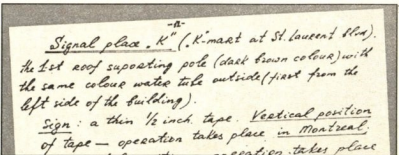
sitive information or completely fabricated material" to his KGB contact. The contact was Igor Vartanian, who as First Secretary for Sports and Cultural Affairs at the Soviet mission in Ottawa traveled widely around the country, especially in connection with the annual Canada-U.S.S.R. hockey matches.

The Mountie met seven times with Vartanian, with other Russians involved in arranging the rendezvous; some provided transportation, while others posted cryptic signals. One method was to stick tapes to a pillar in an Ottawa shopping center. According to written instructions given the Mountie, "Vertical position of tape—operation takes place in Montreal. Horizontal position—operation takes place in Ottawa. Yellow color—call for the regular meeting. Black color—call for instant meeting."

But the KGB has posted its last tape. Convinced that the entire network was in the R.C.M.P.'s noose, the government last week summoned Soviet Ambassador Alexander Yakovlev to the Department of External Affairs. He was told that Canada had "irrefutable evidence" of the caper. Yakovlev was handed a stern protest and coldly informed that eleven of his colleagues were being kicked out of Canada; two others, in Moscow on leave, would not be allowed to return.

The KGB's attempt to infiltrate the Mounties' Security Service was Canada's most sensational Russian spy case since the 1945 defection of Soviet Embassy Cipher Clerk Igor Guzenko, which eventually led to the exposure of a massive espionage underground extending to Britain. Said Jamieson: "This incident and the action we have had to take today will inevitably place strains on our relations with the Soviet Union." As a start, he canceled a scheduled trip to the U.S.S.R. next month.

For the Mounties, the spy-ring discovery could not have come at a better time. In Canada, the R.C.M.P.'s image has been tarnished by accusations—still under investigation—that the Security Service was involved in illegal searches, entries and other improper activities in the early 1970s. But last week's coup proved the Mounties can still get their man.

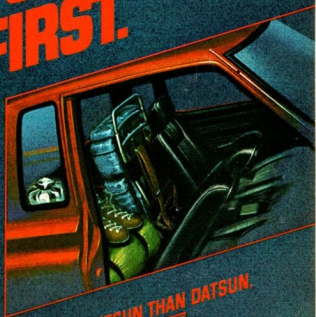


Excerpt from a KGB notebook giving directions to Mountie "recruited" as Soviet spy
Hollow sticks, cigarette packs, coded passwords—and none of it worked.



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THE COMPUTER SOCIETY

COVER STORIES

The Age of Miracle Chips

New microtechnology will transform society

It is tiny, only about a quarter of an inch square, and quite flat. Under a microscope, it resembles a stylized Navaho rug or the aerial view of a railroad switching yard. Like the grains of sand on a beach, it is made mostly of silicon, next to oxygen the most abundant element on the surface of the earth.

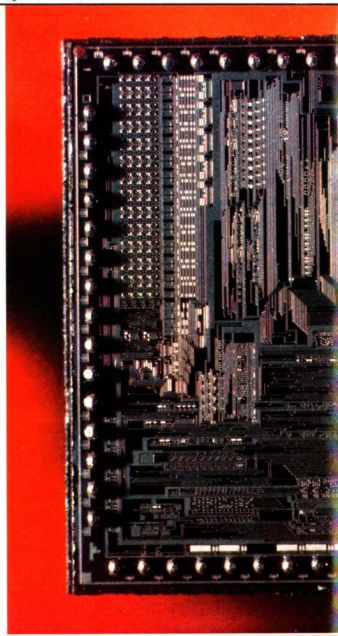
Yet this inert fleck—still unfamiliar to the vast majority of Americans—has astonishing powers that are already transforming society. For the so-called miracle chip has a calculating capability equal to that of a room-size computer of only 25 years ago. Unlike the hulking Calibans of vacuum tubes and tangled wires from which it evolved, it is cheap, easy to mass produce, fast, infinitely versatile and convenient.

The miracle chip represents a quantum leap in the technology of mankind, a development that over the past few years has acquired the force and significance associated with the development of hand tools or the discovery of the steam engine. Just as the Industrial Revolution took over an immense range of tasks from men's muscles and enormously expanded productivity, so the microcomputer is rapidly assuming huge burdens of drudgery from the human brain and thereby expanding the mind's capacities in ways that man has only begun to grasp. With the chip, amazing feats of memory and execution become possible in everything from automobile engines to universities and hospitals, from farms to banks and corporate offices, from outer space to a baby's nursery.

Those outside the electronic priesthood often have trouble grasping the principles of the new microtechnology or comprehending the accomplishments of the minuscule computers. The usual human sense of scale, the proportion between size and capability, the time ratio assumed between thought and action, are swept into a new and surreal terrain. Consequently, people tend to anthropomorphize the computer; they are superstitious about it. In *2001: A Space Odyssey*, the companionable computer HAL turns rogue in outer space and methodically begins assassinating its masters. In a B-movie called *Demon Seed*, the world's most advanced computer actually impregnates a scientist's wife, played by Julie Christie; it is so smart that it yearns to be alive—and scarily succeeds. Some manufacturers of computer games have discovered that people are disconcerted when the computer responds instantly after the human has made his move. So the computers have been programmed to wait a little while before making countermoves, as if scratching their heads in contemplation.

A fear of intellectual inadequacy, of powerlessness before the tireless electronic wizards, has given rise to dozens of science-fiction fantasies of computer takeovers. In *The Tale of the Big Computer*, by Swedish Physicist Hannes Alfvén, written under the pen name Olof Johannesson, the human beings of today become the horses of tomorrow. The world runs not for man but for the existence and welfare of computers.

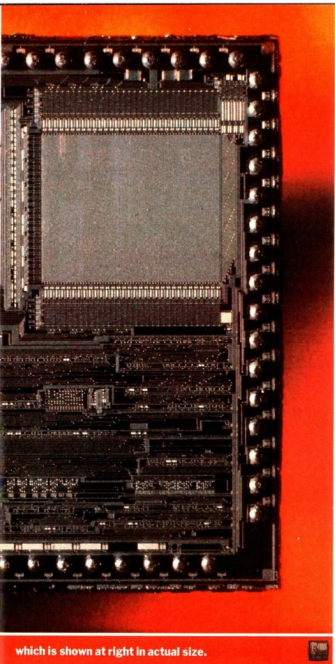
Other scientists too are apprehensive. D. Raj Reddy, a computer scientist at Pittsburgh's Carnegie-Mellon University, fears that universally available microcomputers could turn into formidable weapons. Among other things, says Reddy, sophisticated computers in the wrong hands could begin subverting a



Magnified view of IBM's complex "computer on a chip."

society by tampering with people's relationships with their own computers—instructing the other computers to cut off telephone, bank and other services, for example. The danger lies in the fast-expanding computer data banks, with their concentration of information about people and governments, and in the possibility of access to those repositories. Already, computer theft is a growth industry, so much so that the FBI has a special program to train agents to cope with the electronic cutpurses.

Dartmouth College President John G. Kemeny, an eminent mathematician, envisions great benefits from the computer, but in his worst-case imaginings he sees a government that would possess one immense, interconnecting computer system: Big Brother. The alternative is obviously to isolate government computers from one another, to decentralize them, to prevent them from possibly becoming dictatorial. But that would require considerable foresight, sophistication—and possibly a tough new variety of civil rights legislation.



which is shown at right in actual size.

Some of the most informed apprehensions about computers are expressed by Professor Joseph Weizenbaum of M.I.T.'s Laboratory for Computer Science. Human dependence on computers, Weizenbaum argues, has already become irreversible, and in that dependence resides a frightening vulnerability. It is not just that the systems might break down; the remedy for that could eventually be provided by a number of back-up systems. Besides, industrialized man is already vulnerable to serious dislocations by breakdowns—when the electrical power of New York City goes out, for example. Perhaps a greater danger, says Weizenbaum, lies in the fact that “a computer will do what you tell it to do, but that may be much different from what you had in mind.” The machines can break loose from human intentions. Computers, he argues, are infinitely literal-minded; they exercise no judgments, have no values. Fed a program that was mistaken, a military computer might send off missiles in the wrong direction or fire them at the wrong time. Several years ago, Admiral Thomas Moorer, then Chairman of the Joint Chiefs of Staff, told a Senate

committee: “It is unfortunate that we have become slaves to these damned computers.”

Some social critics are worried that a democratization of computers, making them as common as television sets are today, may eventually cause human intellectual powers to atrophy. Even now, students equipped with pocket calculators have been relieved of having to do their figuring on paper; will they eventually forget how to do it, just as urban man has lost so many crafts of survival? Possibly. But the steam engine did not destroy men's muscles, and the typewriter has not ruined the ability to write longhand.

Certain pre-computer skills should be taught so that they do not vanish. But as Leibniz observed in 1671: “It is unworthy of excellent men to lose hours like slaves in the labor of calculation which could safely be relegated to anyone else if machines were used.” Einstein had to have help with his calculations; they are drone's work anyway. Says Author Martin Gardner (*Mathematical Carnival*): “There is no reason why a person should have to sit down and compute the square root of seven. The computer is freeing the individual for more interesting tasks.”

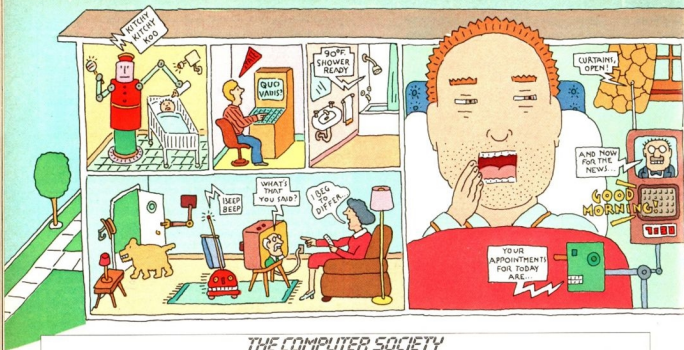
The rapid proliferation of microcomputers will doubtless cause many social dislocations. But the hope is that the burgeoning technology will create an almost limitless range of new products and services and therefore a great new job market. Though one expert estimates that it would take the entire U.S. female population between ages 18 and 45 to run the nation's telephone system if it were not computerized, Ma Bell now employs more people than it did when its first automatic switching service was introduced.

All of the prodigies of technology leave many people not only nostalgic for simpler times but alarmed by the unknown dangers that “progress” may bring with it. Those who first used fire must have terrified their generation. Practically any breakthrough in knowledge carries with it the possibility that it will be used for evil. But with microcomputers, the optimists can argue an extremely persuasive case. The Industrial Revolution had the effect of standardizing and routinizing life. Microtechnology, with its nearly infinite capacities and adaptability, tends on the contrary toward individualization; with computers, people can design their lives far more in line with their own wishes. They can work at terminals at home instead of in offices, educate themselves in a variety of subjects at precisely the speed they wish, shop electronically with the widest possible discretion. Among other things, microtechnology will make the mechanism of supply and demand operate more responsively; customers' wishes will be registered at the speed of light.

Some, like Sociologist Seymour Martin Lipset, envision a “more egalitarian society” because of the computer. Transferring so much work to the machines, thinks Lipset, may produce something like Athenian democracy; Athenians could be equal because they had slaves to do their work for them.

Says Isaac Asimov, the prolific author and futuristic polymath: “We are reaching the stage where the problems that we must solve are going to become insoluble without computers. I do not fear computers. I fear the lack of them.” Many people have great expectations and doubts about the new technology, especially in a century when they have felt themselves enslaved and terrorized by the works of science. Stewart Brand, creator of the *Whole Earth Catalog*, argues for a longer perspective: “This is a story that goes back to the beginning of tool-using animals, back to the rocks the earliest man picked up in Africa. As soon as he started picking up rocks, his hands started changing, his brain started changing. Computers are simply a quantum jump in the same co-evolutionary process.”

There seems little doubt that life in the U.S., then in the rest of the industrial world and eventually all over the planet, will be incalculably changed by the new microtechnology. In the following pages of this special section, TIME explores the changes that are likely to come and those that have already occurred. We also explain the recondite world of microcomputers, how they work, how and where they are made, and look far ahead to a future when the distinction between man and the wondrous device he has created may begin to blur. ■



THE COMPUTER SOCIETY

Living: Pushbutton Power

The computer revolution may make us wiser, healthier and even happier

It is 7:30 a.m. As the alarm clock burrs, the bedroom curtains swing silently apart, the Venetian blinds snap up and the thermostat boosts the heat to a cozy 70°. The percolator in the kitchen starts bubbling; the back door opens to let out the dog. The TV set blinks on with the day's first newscast: not your Today show humph-humph, but a selective rundown (ordered up the night before) of all the latest worldwide events affecting the economy—legislative, political, monetary. After the news on TV comes the morning mail, from correspondents who have dictated their messages into the computer network. The latter-day Aladdin, still snugly abed, then presses a button on a bedside box and issues a string of business and personal memos, which appear instantly on the genre screen. After his shower, which has turned itself on at exactly the right temperature at the right minute, Mr. A. is alerted by a buzzer and a blue light on the screen. His boss, the company president, is on his way to the office. A. dresses and saunters out to the car. The engine, of course, is running...

After her husband has kissed her goodbye, Alice A. concentrates on the screen for a read-out of comparative prices at the local merchants' and markets. Following eyeball-to-eyeball consultations with the butcher and the baker and the grocer on the tube, she hits a button to commandeer supplies for tonight's dinner party. Pressing a couple of keys on the kitchen terminal, she orders from the memory bank her favorite recipes for oysters Rockefeller, boeuf à la bourguignonne and chocolate soufflé, tells the machine to compute the ingredients for six servings, and directs the ovens to reach the correct temperature for each dish according to the recipe, starting at 7:15 p.m. Alice then joins a televised discussion of Byzantine art (which

she has studied by computer). Later she wanders into the computer room where Al ("Laddy") Jr. has just learned from his head-set that his drill in Latin verb conjugation was "groovy."

Wellsian fantasy? Verne-Vonnegut put-on? Maybe. But while this matutinal scenario may still be years away, the basic technology is in existence. Such painless, productive awakenings will in time be as familiar as Dagwood Bumstead's pajamaed panics. And, barring headaches, tummy aches and heartaches, the American day should proceed as smoothly as it begins. All thanks to the miracle of the microcomputer, the supercheap chip that can electronically shoulder a vast array of boring, time-consuming tasks.

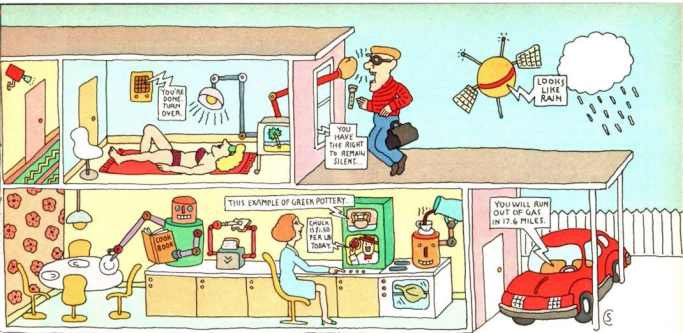
The microelectronic revolution promises to ease, enhance and simplify life in ways undreamed of even by the utopians. At home or office, routine chores will be performed with astonishing efficiency and speed. Leisure time, greatly increased, will be greatly enriched. Public education, so often a dreary and capricious process in the U.S., may be invested with the inspiring quality of an Oxford tutorial—from preschool on. Medical care will be delivered with greater precision.

Letters will not so easily go astray. It will be safer to walk the streets because people will not need to carry large amounts of cash; virtually all financial transactions will be conducted by computer. In the microelectronic global village, the home will again be the center of society, as it was before the Industrial Revolution.

Mass production of the miracle chip has already made possible home computer systems that sell for less than \$800—and prices will con-



Home computer includes TV screen and keyboard
Lives enhanced in ways undreamed of by utopians.



continue to fall. Many domestic devices that use electric power may be computerized. Eventually, the household computer will be as much a part of the home as the kitchen sink; it will program washing machines, burglar and fire alarms, sewing machines, a robot vacuum cleaner and a machine that will rinse and stack dirty dishes. When something goes wrong with an appliance, a question to the computer will elicit repair instructions—in future generations, repairs will be made automatically. Energy costs will be cut by a computerized device that will direct heat to living areas where it is needed, and turn it down where it is not; the device's ubiquitous eye, sensing where people are at all times, will similarly turn the lights on and off as needed.

Paper clutter will disappear as home information management systems take over from memopads, notebooks, files, bills and the kitchen bulletin board. Michael Dertouzos, director of M.I.T.'s computer-science laboratory, keeps in his home computer all financial data, income tax records, things-to-do lists, appointments, phone numbers and the equivalent of a desk calendar. His children even compose their Christmas cards with the help of the ever obliging minicomputer.

f an M.I.T. professor has seen the future and is making it work, so, appropriately, is the city of Columbus, Ohio. This New Atlantis since last December has become the prototype electronic village. The Columbian connection is called QUBE (pronounced cube). Described by its developers, Manhattan-based Warner Cable Corp., as the first large-scale use of "participatory TV," QUBE provides subscribers with 30 television channels (Columbus has only four TV stations) that include all-day, nonviolent preschool children, educational films, first-run sports events, college credit courses and soft-core pornography or commercial breaks.

For a base charge of \$10.95 a month, the QUBE subscriber can voice his opinions in local political debates, conduct garage sales and bid for *objets d'art* in a charity auction. QUBE is the first major system in which the viewer can talk back to the tube. By pressing a button, Joe or Jane Columbus can quiz a politician, or turn electronic thumbs down or up on a local amateur talent program, à la *Gong Show*. QUBE supplies specialized programs for doctors and lawyers; the local newspaper asks viewers to evaluate its features; advertisers pretest commercials for audience reaction. Columbus' multifaceted QUBE also com-

parison-shops the local supermarkets and makes it possible to book a table at an Oriental restaurant and order the meal in advance. Oh, Brave New World! Hail, Columbus!

While it may be a number of years before the average housewife can do her shopping by computer TV, the basic instrumentation is already in place in an ever growing number of supermarkets.

The computer might appear to be a dehumanizing factor, but the opposite is in fact true. It is already leading the consumer society away from the mass-produced homogeneity of the assembly line. The chip will make it possible some day to have shoes and clothes made to order—the production commanded and directed by computer—within minutes. The custom-made object, now restricted to the rich, will be within everyone's reach.

In no area of American life is personal service so precious as in medical care. Here, too, the computer has become a humanizing factor; the patient tends to give a more candid account of his symptoms, regimen and medical history to a machine programmed to ask the proper preliminary questions than to a harassed and possibly intimidating doctor.

At Boston's Beth Israel Hospital, for example, some patients sit down at a computer terminal before meeting a physician to provide their medical histories and receive information about the hospital. The computer interviews can be done in French and Spanish, as well as English, with a physician receiving an instantaneous translation. At Beth Israel and other hospitals, much of the literature on some major ailments, such as stroke and blood disease, has been computerized for doctors' consultation. Computers are already capable of detecting and monitoring ocular and cerebral ailments such as glaucoma and brain tumors.

At a few hospitals, computers are programmed not only to remind the pharmacy department to prepare prescriptions but also to alert nurses to give the proper dosage at the right time. After a physician examines a patient at Boston's Massachusetts General Hospital, a report, including lab test results, is logged into a data bank. One of the hospital's more than 100 terminals will then handle the patient's history in an intelligible language infelicitously named MUMPS (an acronym for Massachusetts General Hospital Utility Multi-Programming System).

More broadly, computers enable the patient to receive a health profile at far lower cost than previously possible; analyze



vast amounts of blood; and, by systematizing information about the patient, cut down his hospital stay and pare both institutional and patient costs.

Next to health, heart and home, happiness for mobile Americans depends upon the well-tempered automobile. Computer technology may make the car, as we know it, a Smithsonian antique. In addition to the microprocessors under the hood that will help the auto operate more efficiently, tiny computers will ease tensions and make life simpler for the driver and passengers too. Ford Motor Co. now offers buyers of its Continental Mark V's an option called "miles to empty." At the push of a button, the driver can get a read-out on the amount of fuel in the tank, and the number of miles he can expect to go (at current speed) before a refill is necessary. Drivers of General Motors' 1978 Cadillac Seville will also be able to punch a button and find out the miles yet to go to a preset destination and the estimated arrival time. The ultimate auto will make the solid gold Cadillac look leaden. It will accommodate a pencil-size portable phone capable of reaching any number in the world in seconds, automatic braking that will take over from a panicked driver, and a miniradar to avert collisions.

The widest benefits of the electronic revolution (unlike those of most revolutions) will accrue to the young. Seymour Papert, professor of mathematics and education at M.I.T., estimates that there will be 5 million private computers in people's homes and available to students within two years; by 1982, he predicts, 80% of upper-middle-class families will have computers "capable of playing important roles in the intellectual development of their children." Says California Author Robert Albrecht, a pioneer of electronic education: "In schools, computers will be more common than carousel slide projectors, movie projectors and tape recorders. They'll be used from the moment school opens, through recess, through lunch period, and on as far into the day as the principal will keep the school open."

What is happening is not only believable but inevitable. In the words of science-fiction writer Ray Bradbury, "It's pure sci-fi." Across the country, "these magical beasts," as they have been called, are assisting hassled, often incompetent teachers. They are reinvigorating soporific students, dangling and delivering intellectual challenges beyond the ken of most educators. Says Bradbury: "Millions of buildings' worth of mostly outdated literature and information will be stored on tiny capsules for retrieval when needed. There's too damn much paper around anyway."

U.C.L.A. Professor of Computer Science Gerald Estrin, who helped to develop the computer at the Institute for Advanced Study in Princeton in the 1940s, says: "The computers provide an intensely visual, multisensory learning experience that can take a youngster in a matter of a few months to a level he might never reach without it, and certainly would not reach in less than many, many years of study by conventional methods." Notes from the classroom:

► In Minnesota, 2,200 educational computer terminals, from tiny farming communities to the Twin Cities, reach 92% of all



Bodygram documents changing patterns of growth in 3-D

students in the state. With a more than \$1 million annual state grant for long-distance telephone charges, students are hooked into a statewide network by which, among other projects, social-studies students can simulate a national election, young biologists analyze the pollution of a lake, and future farmers learn how best to manage a given number of acres.

► In Sunnyvale, Calif., Robert Albrecht is using personal computers to teach "kids how to program computers so that they can teach other kids." Sunnyvale students can also engage in such simulations as "Whale Watching," in which they help a southward-migrating gray whale make the necessary navigational and survival decisions to reach the Baja California breeding grounds. One effect of the computer, says Albrecht, is "to create worlds of 'If' for children to explore."

► In Brookline, Mass., under the direction of Seymour Papert, a pilot study costing almost \$1.5 million and financed by the National Science Foundation, is getting its first realistic testing with 48 sixth-graders who are learning to program computers for math, language, music making and, says Papert, "we like to believe, thinking skills."

► In New Hampshire, at Ivy League Dartmouth College, more than 96% of this year's graduating class can use computers, which are as freely available as library stacks. The system was set up by Dartmouth President John Kemeny, who might be called the Mr. Chips of computerized education. Says Computer Consultant John Nevison: "Learning to write a computer program must now be considered part of becoming a liberally educated person." Indeed, educational analysts report that high school students are increasingly choosing colleges on the basis of their computer facilities.

► In Illinois, at the University of Illinois' Champaign-Urbana campus, a system known as PLATO (Programmed Logic for Automatic Teaching Operations) helps teach 150 subjects, ranging from Swahili to rocketry (but not Plato). The student sits in a booth in which he can conduct a Socratic dialogue with the computer via a typewriter keyboard. Its protégés praise PLATO for "kindness" and "personalized attention."



Elementary school students learning at terminals in suburban St. Paul
Also, whale watching, Swahili, and dialogues with PLATO.

THE COMPUTER SOCIETY

The computer's benign influence extends to the handicapped. The tremendously arduous process of turning print into Braille for the blind has become a relatively simple mechanical routine. In April, Telesensory Systems Inc., of Palo Alto, Calif., will start marketing a game center consisting of eight games for the unsighted; oscillating tones will replace the screen markings for contests like paddle ball; and synthesized speech will be used for other games such as tic-tac-toe, blackjack and skeet shoot.

The home computer has until recently been largely the province of the hobbyist. With basic kits that can be bought for less than \$100 (and can easily cost \$5,000 or more when sophisticated widgets and gizmos are added), "home brewers," as they style themselves, have taught their devices a diversity of skills beyond the interests of the big computer companies.

It is these basement Edisons, part-time tinkers and others who own computers for personal or professional reasons who will most probably realize the vast potential of the silicon chip for the consumer. They are an avid, eager-beaver breed, anxious to share technological insights and applications with other chip fanatics. Computerniks have already formed some 400 informal clubs, and these are growing rapidly. Electronic stores are proliferating like fast-(brain)food outlets. They, too, operate as semi-clubs, where employees are as interested in yakking as in selling. Even Montgomery Ward now offers, for \$399, a home computer.

The chips are used to compose music, draw Op artistic pictures and write poems. They will never be Marvels or undo Donne—but they are trying. Poet-Novelist Carol Spearin McCauley notes in her book *Computers and Creativity* (Praeger) that the well-programmed computer is freed from "the confines of English grammar, syntax and common usage ... The ma-

chine's lack of shame, so to speak, frees it to express many things that a writer, by habit used to excluding or censoring the ungrammatical, awkward or ambiguous, would not consider." Marie Boroff, an English professor at Yale, acted as muse to a computer that produced these near-erotic lines:

*O poet,
Dream like an enormous flood:
Let the work of your bed
Be stilled;*

*The night
Comes and shines*

*The earthworms are multiplying;
The river
Winks
And I am ravished.*

*O poet,
The body of your blessing reaches me ...*

For the mighty army of consumers, the ultimate applications of the computer revolution are still around the bend of a silicon circuit. It is estimated that there are at least 25,000 applications of the computer awaiting discovery. Notes *The Economist*: "To ask what the applications are is like asking what are the applications of electricity." Certainly, the miracle chip will affect American life in ways both benign and productive. Far from George Orwell's gloomy vision of *Nineteen Eighty-Four*, the computer revolution is stimulating intellects, liberating limbs and propelling mankind to a higher order of existence. ■

Checking Out Tomorrow



Americans spend more than \$153 billion a year on food and other purchases in supermarkets and grocery stores, and have an abiding suspicion that they are getting gypped at the check-out counter. Their mistrust should be considerably allayed, and the waiting lines shortened, by the ever growing number of computers that are taking over the tally.

At a computer-equipped check-out line, all the clerk has to do is pass each item over a Cyclopean eye linked to a cash register and a scale. In a twinkling, the eye "reads" the striped UPC (Universal Product Code) symbol, by which the computer system identifies the product, brand name and other pertinent information about the item. (The store manager can program into the computer price changes for specials or daily fluctuations.) Then the computer prints out both the name of the item (say, one 4-oz. can of sliced French beans) and the price on the receipt list.

The miracle-chip brain of the check-out computer is amazingly versatile. If, for example, a customer buys two cans of tomato soup priced at two for 49¢, the computer will charge 25¢



Computerized counter in Norwalk, Conn.
Cyclopean eye plus meticulous memory.

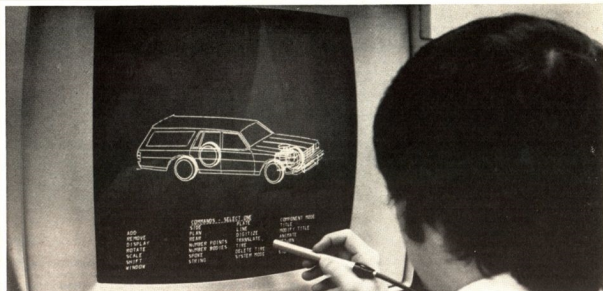
for the first can that crosses the eye. Then, no matter how many different items have been handled in between, when the second can passes across the eye, the computer—remembering the first—will charge only 24¢ for it.

If an item is not code-marked, or if the clerk mistakenly positions it so that the marking is on the upper surface (and thus invisible to the scanning eye), the computer signals that it has not

charged for that merchandise; it will then be added manually to the bill by the check-out clerk. In handling produce that must be weighed, the computer reads the code on the plastic bag containing, say, a half-dozen Delicious apples, but delays ringing up the charge until the bag has been placed on the computer-connected check-out scale. Then, programmed with the price per lb., it calculates and prints out the cost; this largely eliminates the time-consuming process of clerky computation.

Unbeknown to the shopper, the check-out computer also logs each outgoing item against inventory in the store or a centralized warehouse, warning the manager when he must reorder and thus greatly reducing the frequency of the "Sorry, we're sold out" dirge. Obviously, the consumer benefits from computerized marketing. So does the store. Since supermarkets operate on a profit margin of about 2% or less, the savings can be crucial.

Though the purchase price for a sophisticated eight-lane check-out system can be more than \$110,000, some 200 systems are already operating in supermarkets around the nation. Some chains are, well, waiting in line for them. In time, chips in check-out counters will be as much a supermarket staple as the crunchy kind that comes in bags and tins.



Chevrolet technician uses computer graphics-display system to help in design of station wagon

Business: Thinking Small

Little whizzes raise the specter of buggy whips

Now one took to the computer more eagerly or saw its usefulness more quickly than the businessman. Now, 24 years after General Electric became the first company to acquire a computer, these versatile machines have become the galley slaves of capitalism. Without them, the nation's banks would be buried under the blizzard of 35 billion checks that rain down on them annually, and economists trying to project the growth of the nation's \$2 trillion economy might as well use Ouija boards. In the airline industry, computers make it possible to reserve a seat on a jumbo jet, pay for it by credit card, and enable the plane itself to fly. In many industries, computers design the products the companies sell. Automakers, for example, use computers to view a prospective new car from any angle; then the computers analyze the market to see if the design will sell.

In fact, the ravenous and growing appetite of U.S. companies for data-processing machines and control devices accounted for a major portion of last year's \$41 billion computer business. Only 15 years ago, IBM was for all practical purposes the computer industry. But the explosive rise in demand has surpassed even IBM's ability to gobble up new orders. Though the company continues to grow at a healthy rate (its 1977 profits of \$2.7 billion on sales of \$18.1 billion were up more than 13% over the year before), the nation's other manufacturers of large computers—Control Data, Burroughs, NCR, Honeywell and Sperry Univac—are also booming. Meanwhile, the clamoring demand has created markets for smaller and younger companies that make minicomputers and peripheral equipment, such as data storage facilities and keyboard terminals, to be used with the big "main frames."

Now the arrival of the miracle chip has given a further boost to an already vital industry. Far from rendering the big computer obsolete, the miracle chip has opened the way for the design of custom-made supercomputers more powerful than anything dreamed possible a few years ago. At the same time, the chips are radically lowering the cost of the minicomputers. These small computers, in turn, are being used for more and more of the routine functions that until recently had to be handled by main frames—at considerable cost to the user.

By spawning new computers in abundance, many industry experts believe, the chips will indirectly give rise to a whole new industry of "software" companies to develop and market the programs that computers need to perform their tasks. Explains Richard Melmon, director of marketing for Umtech Corp., a maker of home computers: "No one would buy a stereo hi-fi if he could not also buy records or tapes to play on it, and it's the same with computers. We soon will see the dawn of a whole new kind of publishing industry."

Benjamin Rosen, chief microelectronics analyst for New York's Morgan Stanley investment banking firm, sees the chips as the major technological development of our time. Says he: "It will have more impact on our society in the next 20 years than any other invention."

Though still in its infancy, the miracle chip has already given rise to one of the most astonishingly competitive and fastest growing industries the nation has ever seen. Among the 50 or so companies producing the versatile little devices are some of the nation's largest electronics and computer firms—IBM, Motorola and Texas Instruments, where Computer Scientist Jack



Texas Instruments production lab

As output grows, prices drop.

Kilby pioneered in developing the integrated circuit, the predecessor of the chip. Also included are a host of brash upstarts that did not even exist ten years ago (see box). Last year's chip sales of \$235 million, while still modest compared with the revenues of the entire computer industry, are expected to grow by a startling 50% annually and exceed \$800 million by as early as 1981. Behind this remarkable rise are the incredible economies of scale involved in the manufacture of the chips; once the complex and costly task of designing them and preparing them for production has been completed, the price per chip becomes almost exclusively dependent upon how many are sold. As a result, every time cumulative production doubles, the chips decline in price by about 30%. Meanwhile, declining prices stimulate increased sales, and these in turn lead to further price declines. It has been a long time since the inflation-battered American economy has seen a better example of how prices are supposed to behave in a free market. A typical example: in 1971 a Sharp Electronics pocket calculator sold for \$395; today a more sophisticated model retails for \$10.95. With their low cost and versatility, says Mal Northrup, vice president of Rockwell International, the chips are already "turning many present products into buggy whips."*

Ironically, the industry's prodigious ability to produce the chips is also its Achilles' heel: the danger that chip makers could eventually produce far more and far more powerful chips than the market can absorb is real. By 1985, according to C. Lester Hogan, vice chairman of Fairchild Camera & Instrument Corp., it will be feasible to build a pocket calculator "that will be more powerful than, and almost as fast as," the \$9 million Cray-1, built by Cray Research Inc. in Chippewa Falls, Wis., and recognized as the mightiest computer in the world.

Whether or not consumers are able to buy number-crunching beasts of that sort, industry faces an immediate challenge: what to do with the new and more powerful chips entering the market every few months? Warns William Howard, Motorola's director of strategic operations: "Our biggest problem is going to be finding ways of transforming all this innovation into viable products that are simple to use. If all we do is build more and more intricate devices that look and act like computers, we will not have done our job properly."

So far, nearly 85% of the industry's production is winding up in the retail market, mostly in the form of TV games, digital watches and calculators. Though products like these are giving the chip makers the sales volume needed to boost output and cut prices, they are hardly a durable base for a high-technology industry. For long-term growth, the chip makers are looking toward four key areas with huge potential:

Automobiles. Last year Detroit bought only about \$2 million worth of chips, but by the early 1980s the auto industry is expected to become a more than \$1 billion market in its own right. At General Motors, chips are already at work regulating the ignition systems of Olds Tornados. GM President Elliott Estes estimates that by 1988 fully 90% of his company's cars will contain even more elaborate electronically controlled ignition systems. Though a computer in every car is still a couple of years away, both Ford and GM last year signed separate long-term contracts with Motorola to deliver upward of \$160 million in chip systems annually to the two automakers.

Communications. In addition to a massive program that is gradually replacing electromechanical switching devices throughout its huge system, Ma Bell is looking into miracle chip applications that would turn the family phone into both burglar alarm and fire alarm, as well as home intercom system. Chips will be used to monitor equipment and alert maintenance teams to potential problems before they occur. Says Lee Thomas, Bell Labs' microprocessor chief: "Applications of the microprocessor five years from now will make the present ones look silly." Motorola has invested \$20 million in developing a chip-operated portable phone that weighs less than 2 lbs. and has no cord. Be-

*One such product is the slide rule, made obsolete by the faster, more accurate and inexpensive pocket calculator. Keuffel & Esser Co., once the world's largest producer of slide rules, stopped manufacturing them in 1972.

Down Silicon Valley

Some people still call it Santa Clara County, Calif., but more and more it is referred to as Silicon Valley, the place the miracle-chip industry calls home. Packed into a 10-mile by 25-mile wedge along the southwestern shore of San Francisco Bay are hundreds of the nation's high-technology firms, many of them involved in manufacturing silicon chips, related semiconductor devices and microcomputer-controlled products. At rush hour, cars inch along Highway 101, the valley's main drag, and peel off into the parking lots of well-manicured, one- and two-story buildings with names like Siliconix Inc., Synertek, Advanced Micro Devices, Signetica, and Intel Corp.

Enveloped in their mystifying jargon of RAMs and ROMs and bits and bytes, the technicians who work in these factories would seem an alien breed to most Americans. Reports TIME Correspondent John Quirt: "Advances in chip making have come so fast that recent engineering graduates are almost the only ones around who

fully understand the technology. In one facility I visited, technicians looked as if they had come straight from a college classroom—and many of them had."

For all the fierce competition, business in the Valley of the Chips remains something of a family affair. The corporate Abraham of the industry was Shockley Transistor Corp., founded in Palo Alto in 1956 by William Shockley, co-inventor of the transistor and a Nobel laureate.

A year later, eight of Shockley's ablest collaborators quit, and with backing from Fairchild Camera and Instrument Corp. founded Fairchild Semiconductor. The new firm

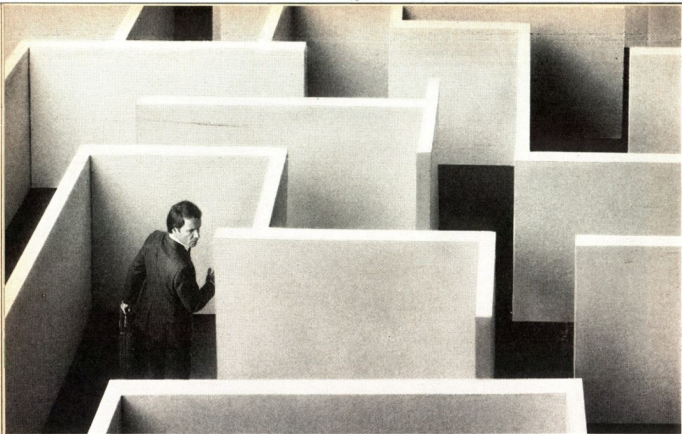


Santa Clara County
Home of the miracle chip.

prospered and eventually began to spawn its own host of upstart competitors as its technicians, one after another, decided to go into business for themselves.

As a result, the valley is speckled with more than 40 firms that have roots tracing to Fairchild. The *Wunderkind* of them all is Intel Corp., founded in 1968 by Robert Noyce and Gordon Moore, both from Fairchild Semiconductor. Starting with twelve workers, Intel has become the world's largest manufacturer of miracle chips, accounting for 26% of the market and employing 8,000 people in ten plants from California to Malaysia.

To stay competitive, companies in the valley are scrambling to snatch away their competitors' best engineers and designers. Says President Jerry Sanders of Advanced Micro Devices: "All a guy has to do here if he wants to change jobs is drive down the same street in the morning and turn in a different driveway." As billion-dollar chip makers like Texas Instruments and Motorola, which are based elsewhere, throw more of their weight into the fray, the smaller companies of the valley may ultimately be forced either to merge or sell out to larger firms. That could endanger the vitality of the valley. Explains Sanders: "This industry has amoeba-like qualities. It doesn't combine very well. It splits." That characteristic is the essence of competition, and no industry has better shown its benefits than the denizens of Silicon Valley.



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THE COMPUTER SOCIETY

ginning in 1979, residents of Washington and Baltimore will be able to use the phones as part of an experiment conducted jointly by the American Radio Telephone Service and the Federal Communications Commission. For a basic monthly charge of approximately \$100, subscribers will be able to carry their telephones with them wherever they go in the Baltimore-D.C. area and, if they wish, make or receive phone calls while they are walking along the street.



Intel Corp. Chairman Robert Noyce

Office Equipment. Before the miracle chip, companies that wanted a computer had to choose between either huge and highly expensive main-frame units or smaller, less powerful—but still costly—minicomputers. By radically lowering the cost of the traditional minicomputer, miracle chips have dramatically expanded the business market for the minis: their sales are growing at a remarkable 40% annually. At the same time, the chip-equipped minis are proving to be an economical way to get more value for the money out of an existing main frame. They store information and process it locally, keeping it handy for when it is needed. This allows computer operators back at headquarters to schedule the arrival of incoming data in a steady, manageable way.

One obvious problem with the growing use of computers in business is the corresponding increase in "computer crime." Though electronic pilfering currently amounts to less than 1% of the \$41 billion in annual business thefts by employees and company executives, it is far more serious than stealing from petty cash, and much harder to uncover. In 1973 officers of Equity Funding Corp. of America, a Los Angeles-based insurance firm, used the company's computer to give a false impression of Equity's assets by fabricating \$2 billion worth of phony life insurance policies. Since big computers can cost tens or even hundreds of dollars a second to operate, their unauthorized use for

private purposes is also a form of theft. For instance, last month two Defense Department employees were indicted in San Francisco for stealing \$2,000 worth of time on a Government computer in order to develop a marketing plan for a private company they hoped to establish.

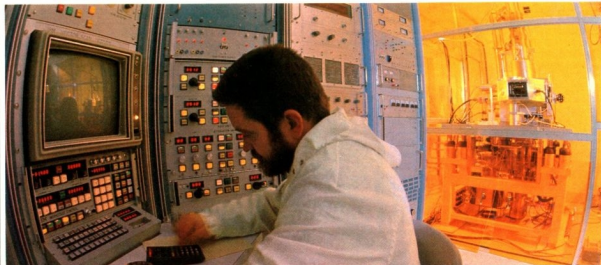
A far greater danger to U.S. businessmen is that they may not be able to keep pace with the product innovations made possible by the miracle chips. For example, while the color-television industry was pioneered by a U.S. firm, RCA, American companies were slow to realize the revolutionary impact that transistors and semiconductors were destined to have. As a result, the market was opened to lower-priced foreign models that exploited the new technology. Given that first foothold, Japanese manufacturers have ever since been a growing threat to the U.S. color-TV industry.

Though they are still several years behind the U.S. in miracle-chip technology, Japanese computer makers are rapidly catching up, in part with the help of government subsidies. For now, Japanese computer imports are less than 1% of the total U.S. market, but they have multiplied eightfold since 1974 and, according to studies by Quantum Science Corp., a marketing research house, could have a significant impact on IBM itself within the next five years. Japanese manufacturers have also shown imagination in designing chip-controlled appliances: all the home video recorders sold in the U.S. are made in Japan, as well as the majority of the low-priced pocket calculators.

Perhaps, as Bell Labs' Thomas suggests, "the most exciting applications will not come until the kids who are still in high school and have grown up with pocket calculators and home computers become the engineers of the 1980s and 1990s." But the miracle chip is here now, and if American business does not quickly take the lead in exploiting its myriad and ever growing capabilities, a potentially enormous market could slip through its fingers.



Computer Scientist Jack Kilby



IBM technician uses a pocket calculator to help operate a sophisticated computer-driven electron beam accelerator

But what is to be done with the new and more powerful microprocessors that are hitting the market every few months?



In Lubbock, Texas, a technician at Texas Instruments operates high-temperature oven for "doping" silicon chips

JACK CASPARY

THE COMPUTER SOCIETY

Science: The Numbers Game

From a roomful of knitting ladies to a superchilled "brain"

For the young electronics engineer at the newly formed Intel Corp., it was a challenging assignment. Fresh out of Stanford University, where he had been a research associate, M.E. ("Ted") Hoff in 1969 was placed in charge of producing a set of miniature components for programmable desktop calculators that a Japanese firm planned to market. After studying the circuitry proposed by the Japanese designers, the shy, self-effacing Hoff knew that he had a problem. As he recalls: "The calculators required a large number of chips, all of them quite expensive, and it looked, quite frankly, as if it would tax all our design capability."

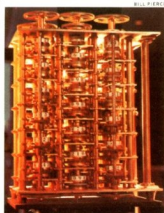
Pondering the difficulty, Hoff was suddenly struck by a novel idea. Why not place most of the calculator's arithmetic and logic circuitry on one chip of silicon, leaving mainly input-output and programming units on separate chips? It was a daring conceptual move. After wrestling with the design, Hoff and his associates at Intel finally concentrated nearly all the elements of a central processing unit (CPU), the computer's electronic heart and soul, on a single silicon chip.

Unveiled in 1971, the one-chip CPU—or microprocessor—contained 2,250 transistors in an area barely a sixth of an inch long and

an eighth of an inch wide. In computational power, the microprocessor almost matched the monstrous ENIAC—the first fully electronic computer, completed in 1946—and performed as well as an early 1960s IBM machine that cost \$30,000 and required a CPU that alone was the size of a large desk. On his office wall,

Hoff still displays Intel's original advertisement: "Announcing a new era of integrated electronics... a microprogrammable computer on a chip."

Intel's little chip had repercussions far beyond the pocket-calculator and minicomputer field. It was so small and cheap that it could be easily incorporated into almost any device that might benefit from some "thinking" power: electric typewriters with a memory, cameras, elevator controls, a shopkeeper's scales, vending machines, and a huge variety of household appliances. The new chip also represented another kind of breakthrough: because its program was on a different chip, the microprocessor could be "taught" to do any number of chores. All that had to be done was to substitute a tiny program chip with fresh instructions. In a memorable display of this versatility, the Pro-Log Corp. of Monterey, Calif., built what was basically a digital clock. But by switching memory chips and



Babbage's difference engine

Inspired by mathematical illiteracy.

hitting it to a loudspeaker, it became first a "phonograph," playing the theme from *The Sting*, then an electric piano.

The Intel chip and one developed at about the same time at Texas Instruments—the question of priority is still widely debated in the industry—were the natural culmination of a revolution in electronics that began in 1948 with Bell Telephone Laboratories' announcement of the transistor. Small, extremely reliable, and capable of operating with only a fraction of the electricity needed by the vacuum tube, the "solid-state" device proved ideal for making not only inexpensive portable radios and tape recorders but computers as well. Indeed, without the transistor, the computer might never have advanced much beyond the bulky and fickle ENIAC, which was burdened with thousands of large vacuum tubes that consumed great amounts of power, generated tremendous quantities of heat, and frequently burned out. In an industry striving for miniaturization, the transistors, too, soon began to shrink. By 1960, engineers had devised photolithographic and other processes (see box) that enabled them to crowd many transistors as well as other electronic components onto a tiny silicon square.

The advent of such integrated circuits (ICs) drastically reduced the size, cost and electrical drain of any equipment in which they were used. One immediate byproduct: a new generation of small, desk-size minicomputers as well as larger, high-speed machines. Their speed resided in the rate at which electric current races through wire: about one foot per billionth of a second, close to the velocity of light. Even so, an electrical pulse required a significant fraction of a second to move through the miles of wiring in the early, large computers. Now even circuitous routes through IC chips could be measured in inches—and traversed by signals in an electronic blink. Computers with ICs not only were faster but were in a sense much smarter. Crammed with more memory and logic circuitry, they could take on far more difficult workloads.

Like the tracks in a railroad yard, ICs were really complex switching systems, shuttling electrical pulses hither and yon at the computer's bidding. Still, ICs could not function by themselves; other electronic parts had to keep the switches opening and closing in proper order. Then came the next quantum leap in miniaturization: the development in the late 1960s of large-scale integration (LSI). Unlike their single-circuit predecessors, which were designed to do only one specific job, LSI integrated a number of circuits with separate functions on individual chips. These in turn were soldered together on circuit boards. Out of such modules, entire computers could be assembled like Erector sets.

But the new LSIs had an innate drawback. Because they were made in rigid patterns and served only particular purposes—or were, as engineers say, "hard-wired"—they lacked flexibility. That limitation was ingeniously solved by the work of Hoff and others on microprogramming—storing control instructions on a memory-like chip. For the first time, computer designers could produce circuitry usable for any number of purposes. In theory, the same basic chip could do everything from guiding a missile to switching on a roast.

Such computational prowess seems dazzlingly unreal, and reinforces the popular image of computers as electronic brains with infinite intelligence. Yet most scientists regard computers, including those on chips, as dumb brutes. "They do only what they are told," insists Louis Robinson, director of scientific computing at IBM's data-processing division, "and not an iota more." What all computers, large and small, do extremely well is "number crunching"; they can perform prodigious feats of arithmetic, handling millions of numbers a second. Equally important, they can store, compare and arrange data at blinding speed. That combination lets the computer handle a broad range of problems—from designing a complex new telescopic lens to sending TV images across the solar system.

Humans have been calculating since the dawn of history—and before. Stone age man, making scratches on animal bones, tried to keep track of the phases of the moon. Other prehistoric people reckoned with pebbles. Indeed, the Latin word *calculus* means a stone used for counting. Perhaps the most enduring calculating device is the abacus, which was used in China as early



Monitoring computer-controlled irradiation of cancer patient

as the 6th century B.C. But the first really serious efforts to make mechanical calculators, in which some of the tallying was done automatically, did not come until the 17th century.

By then numbers had become especially important because of great advances in astronomy, navigation and other scientific disciplines. More than ever before, it was necessary to rely on long tables of such elementary mathematical functions as logarithms, sines and cosines. Yet compiling these essential tools often required years of slavish toil.

Still, mathematical illiteracy continued to plague Europe. In the early 19th century, Charles Babbage, an idiosyncratic mathematician and inventor of the railroad cowcatcher and the first tachometer, was becoming increasingly incensed by the errors he found in insurance records, logarithm tables and other data. His fetish for accuracy was so great, in fact, that after reading Lord Tennyson's noted line "Every moment dies a man/ Every moment one is born," he wrote the poem: "It must be manifest that if this were true, the population of the world would be at a standstill." Babbage's recommended change: "Every moment dies a man/ Every moment 1 1/2 is born."

In 1822, Babbage began work on a machine, called the difference engine, that could help solve polynomial equations to six places. The Chancellor of the Exchequer was so impressed by the machine's potential for compiling accurate navigational and artillery tables that he subsidized construction of a still larger difference engine that could compute to 20 places. Unfortunately, the metalworkers of Babbage's day were not up to making the precision parts required, and the machine was never completed. But Babbage had a bolder dream: he wanted to build a machine, which he dubbed the analytical engine, that could perform any arithmetical and logical operations asked of it. In effect, it would have been programmable—that is, a true computer instead of a mere calculator.

To "instruct" the machine, Babbage borrowed an idea that had just revolutionized the weaving industry. Using a string of cards with strategically placed holes in them, like those in a

The Art of Chip Making

No other manufacturing process is quite like it. Only a single speck of dust can ruin a chip, so work must be done in "clean rooms," where the air is constantly filtered and workers are swathed in surgical-type garb.

Some 250 chips are made from one razor-thin wafer of precisely polished silicon about 3 in. in diameter. These wafers, in turn, are sliced from cylinders of extremely pure (99.9%) crystalline silicon, grown somewhat like rock candy. Why silicon? Because it can be either electrically conducting or nonconducting, depending on the impurities added to it. Thus one small area of a chip can be "doped" (as scientists say) with impurities that give it a deficiency of electrons—making it a so-called *p* (or electrically positive) zone, while an adjacent area gets a surplus of electrons to create an *n* (negative) zone. If two *n* zones, say, are separated by a *p* zone, they act as a transistor, which is an electronic switch: a small voltage in the *p* zone controls the fluctuations in a current flowing between the *n* zones. In this manner, thousands of transistors can be built into a single chip.

As in silk-screening, a chip's complex circuitry is created a layer at a time. It is a slow, painstaking and error-prone procedure.

First, racks of wafers are placed in long cylindrical ovens filled with extremely hot (about 2,000° F.) oxygen-containing gas or steam. In effect, the wafers are rusted—covered by a thin, electrically insulating layer of silicon dioxide that prevents short-circuiting. Then the wafers are coated with still another substance: the resist, a photographic-type emulsion sensitive only to ultraviolet (UV) light. (To prevent accidental exposure, clean rooms are generally bathed in UV-less yellow light.) Next, a tiny mask, scaled down photographically from a large drawing and imprinted with hundreds of identical patterns of one layer of the chip's circuitry, is placed over the wafer. Exposed to UV, the resist's shielded areas remain soft and are readily washed away in an acid bath. On the other hand, the unshielded areas harden, forming an outline of the circuit.

Back in the ovens, the wafers are baked again in an atmosphere of gases loaded with "dopants." Like oil stains in a concrete driveway, these impurities soak into the underlying silicon. Since chips usually contain as many as ten layers, all these steps—"rusting," photomasking, etching, baking, etc.—must be repeated for each layer. Then the entire wafer is coated with an aluminum conductor, which also must be masked, etched and bathed in acid. Finally, an eagle-eyed computerized probe scans the wafer for defective circuitry and marks the bad chips in red. The wafer is then separated by a diamond cutter, the bad chips are discarded and the good ones externally wired, sealed in plastic or metal and shipped off to the user.



Large photomask before reduction

piano roll, the Frenchman Joseph Marie Jacquard automatically controlled which threads of the warp would be passed over or under with each pass of the shuttle. Babbage planned to use the same technique to program his machine; instead of the positions of threads, the holes in his cards would represent the mathematical commands to the machine. Wrote Babbage's mathematically knowledgeable friend Lady Lovelace, daughter of the poet Lord Byron: "We may say most aptly that the Analytical Engine weaves *algebraical patterns* just as the Jacquard-loom weaves flowers and leaves."

Babbage's loom, alas, never wove anything. By the time the eccentric genius died in 1871, he had managed to put together just a few small parts; only his elaborate drawings provide a clue to his visionary machine. Indeed, when Harvard and IBM scientists rediscovered Babbage's work in the 1940s while they were building a pioneering electromechanical digital computer called Mark I, they were astonished by his foresight. Said the team leader, Howard Aiken: "If Babbage had lived 75 years later, I would have been out of a job."

The Harvard machine occupied a large room and sounded, in the words of Physicist-Author Jeremy Bernstein, "like a roomful of ladies knitting." The noise came from the rapid opening and closing of thousands of little switches, and it represented an enormous information flow and extremely long calculations for the time. In less than five seconds, Mark I could multiply two 23-digit numbers, a record that lasted until ENIAC's debut two years later. But how? In part, the answer lies in a beguilingly simple form of arithmetic: the binary system. Instead of the ten digits (0 through 9) of the familiar decimal system, the computer uses just the binary's two symbols (1 and 0). And with enough 1s and 0s any quantity can be represented.

In the decimal system, each digit of a number read from right to left is understood to be multiplied by a progressively higher power of 10. Thus the number 4,932 consists of 2 multiplied by 1, plus 3 multiplied by 10, plus 9 multiplied by 10 × 10, plus 4 multiplied by 10 × 10 × 10. In the binary system, each digit of a number, again read from right to left, is multiplied by a progressively higher power of 2. Thus the binary number 11010 equals 0 times 1, plus 1 times 2, plus 0 times 2 × 2, plus 1 times 2 × 2 × 2, plus 1 times 2 × 2 × 2 × 2 —for a total of 26 (see chart).

Working with long strings of 1s and 0s would be cumbersome for humans—but it is a snap for a digital computer. Composed mostly of parts that are essentially on-off switches, the machines are perfectly suited for binary computation. When a switch is open, it corresponds to the binary digit 0; when it is closed, it stands for the digit 1. Indeed, the first modern digital computer completed by Bell Labs scientists in 1939 employed electromechanical switches called relays, which opened and closed like an old-fashioned Morse telegraph key. Vacuum tubes and transistors can also be used as switching devices and can be turned off and on at a much faster pace.

But how does the computer make sense out of the binary numbers represented by its open and closed switches? At the heart of the answer is the work of two other gifted Englishmen. One of them was the 19th century mathematician George Boole, who devised a system of algebra, or mathematical logic, that can reliably determine if a statement is true or false. The other was Alan Turing, who pointed out in the 1930s that, with Boolean algebra, only three logical functions are needed to process these "trues" and "falses"—or, in computer terms, 1s and 0s. The functions are called AND, OR and NOT, and their operation can readily be duplicated by simple electronic circuitry containing only a few transistors, resistors and capacitors. In computer parlance, they are called logic gates (because they pass on information only according to the rules built into them). Incredible as it may seem, such gates can, in the proper combinations, perform all the computer's high-speed prestidigitations.

The simplest and most common combination of the gates is the half-adder, which is designed to add two 1s, a 1 and a 0, or two 0s (see diagram). If other half-adders are linked to the circuit, producing a series of what computer designers call full ad-

ders, the additions can be carried over to other columns for tallying up ever higher numbers. Indeed, by using only addition, the computer can perform the three other arithmetic functions. Multiplication is often accomplished by repeated additions, division by repeated subtractions. Subtraction, on the other hand, can be done by an old trick known in the decimal system as "casting out nines"—taking the nines complement of the number to be subtracted and then adding 1 to the result. The operation is even easier with binary numbers: the complement is obtained by changing all 1s to 0s and all 0s to 1s.

Though it worked on the decimal rather than the binary system, Babbage's analytical engine was also a digital computer. Numbers were represented by the turns of gears and cogs and the positions of levers. Had Babbage ever succeeded in building his engine, it might have been as big as a football field, would have been powered by steam, and would have sounded

BINARY NUMBERS

and their decimal equivalents

1 = 1	101 = 5	1001 = 9	1101 = 13
10 = 2	110 = 6	1010 = 10	1110 = 14
11 = 3	111 = 7	1011 = 11	1111 = 15
100 = 4	1000 = 8	1100 = 12	10000 = 16

as noisy as a boiler factory. Yet the same principles underlying the clangorous computations it would have made can be found in today's silent electronic wizards, all of which contain five basic sections:

Input. This section translates information from a variety of devices into a code that the

computer understands. In Babbage's scheme, the manual turning of counters or use of punched cards provided the input. Today such cards, as well as punched tape, are still used. But they have been supplemented by other methods, including magnetic tapes, discs and drums; the precisely tuned beep-beeps of the Touch-Tone telephone (whose lower left and right buttons have been reserved for computer communications and other information processing); the familiar keyboard-and-TV unit; optical scanners that can "read" characters at high speeds; electronic ears that can recognize a limited number of spoken words. In every case, the object is the same: to translate information

How a Computer Adds 1 and 1

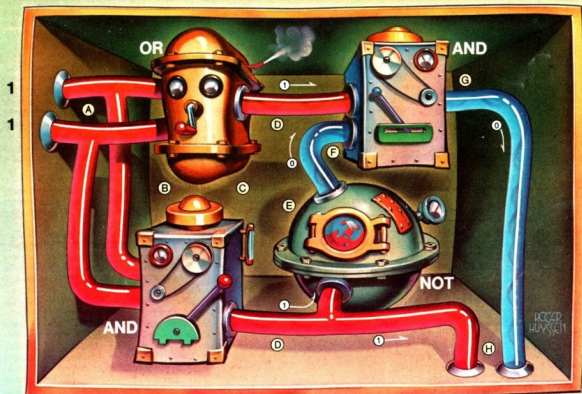
This is a fanciful version of a half-adder, one of the computer's basic logic circuits, which recognizes and processes electric currents representing 0s and 1s. Here, electricity is represented by water, the gates by valves, 1s by hot (red) water and 0s by cold (blue).

A Entering the logic circuit via pipes at far left are two flows of hot water (binary 1s) to be processed by logic gates.

B The incoming streams of hot water flow to the OR gate (top left) and to the first AND gate (bottom left), reaching them simultaneously.

C Both the OR gate and the AND gate let the hot water through, the AND because both are hot and the OR because at least one is hot.

D The water at the top heads to the second AND. The bottom stream divides: one part flows toward the exit, the other toward the NOT gate.



E A NOT gate is an "inverter," changing 0s to 1s and 1s to 0s. Thus the gate chills the water flowing through it, changing the hot water to cold.

F The cold water (binary 0) from the NOT gate flows upward through the pipe into the AND gate, as does the stream of hot water in the top pipe.

G Since one of the streams entering the AND gate is cold, only cold water emerges from the gate—on its way out of the circuit.

H Finally, the original streams of hot water (both 1s) emerge as one stream of hot water and one of cold—or 1 0, the binary notation for 2.

1 0 = 2



Pittsburgh skyline seen through "eye" of Carnegie-Mellon computer

—letters, numbers, images, sounds, marks or simply magnetized ink on a check—into patterns of electrical pulses that are comprehensible to the computer.

Memory. Babbage dubbed this unit the store, and it does just that; it stores information until it is needed by other parts of the machine. For nearly two decades the most popular memory in modern computers has been the magnetic core variety. It consists of thousands of tiny iron rings, each one encircling an intersection of two wires in a rectangular grid made up of thousands of wires. Depending on the direction of current in the two wires that pass through its hole, each doughnut is magnetized in either a clockwise or counterclockwise direction. This represents either a 1 or a 0—a "bit" (for binary digit) of information. Because each core has a specific location in the precisely designed grid, it can be "addressed" almost instantly: information can be read from any doughnut by means of a third wire passing through each core. These fragile and expensive core memories are now being replaced by semiconductor memories on chips. In addition to such "random access" memories, as they are called, computers have auxiliary memories in the form of magnetic tape or discs. These have the advantage of large capacity and low cost, and are used to store information in bulk.

Arithmetic and Logic. To handle, direct and process the flood of information, the computer relies on this unit, which Babbage dubbed the mill. It is here that the computer does its number crunching and data manipulation.

Control. This is the computer's traffic cop. It gets instructions stored in the memory section and interprets them; it regulates the memory and arithmetic-logic sections and the flow of information between them, and orders processed data to move from the memory to the output section.

Output. Processed data are translated by this section into electrical impulses that can control an almost endless variety of devices. Thus the output may take the form of words or numbers "read out" on high-speed printers or glowing cathode-ray tubes. It can also emerge as an artificial voice, commands to an airplane's steering mechanism or even directions to another computer.

While Babbage's engine also included the concept of programmed instructions, today's machines are significantly different as a result of a refinement proposed in the 1940s by the Hungarian-born mathematical genius John von Neumann. After seeing ENIAC, he suggested "writing" both the data to be handled by the computer and the instructions for do-

ing the job in the same memory and using the same code. It was a key innovation in computer theory, for it meant that the machine could cope with instructions just as if they were data. As Texas Instruments' William C. Holton explains, "A program can therefore alter another program or even itself."

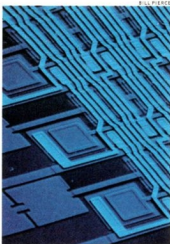
Indeed, the act of creating computer programs—or "software"—has become a major preoccupation of computer scientists. At the University of Pennsylvania, ENIAC's designers, J. Presper Eckert Jr. and John W. Mauchly, had to alter the wiring manually, almost as if they were telephone operators rearranging the plugs on a switchboard, when they wanted to give the machine new instructions. Now, as the result of the development of an increasingly sophisticated hierarchy of computer languages such as FORTRAN, COBOL, BASIC and APL, computer users are able to give the machine instructions that are more and more like spoken English.

Extraordinary as today's computers are, they will probably seem like dumbbells compared with those on the horizon. Computers may be improved, for example, by a charge-coupled device (CCD) developed by Bell Labs; it stores packets of electrical charge in movable chains, like the clothing on the automatic racks in dry-cleaning establishments. As the charges pass by a station, they can be "read." Experimental CCDs that store more than 65,000 bits per chip have been built. To cram still more information onto a chip, engineers are experimenting with a tool even more precise than photolithography: beams of electrons, which can be aimed and controlled by computer as they trace out the miniature circuitry. Another Bell innovation is the magnetic-bubble memory, in which microscopic pockets of magnetism ("bubbles") are created in a semiconducting material. Produced by an external electric or magnetic field, the bubbles move along orderly pathways; as they pass fixed stations, the presence or absence of bubbles is read as coded information. A 250,000-bit experimental bubble memory has already been produced. In the future the contents of an entire encyclopedia, film library or record collection may be stored on a chip.

Looking in another direction, scientists at IBM and elsewhere are seeking to improve not only the computer's memory but its logical functions as well. One approach stems from predictions made in 1962 by a young British graduate student named Brian Josephson, who shared a Nobel Prize for the work. His ideas involve a physical phenomenon called electron tunneling. At temperatures close to absolute zero (-459.69°F), he theorized, an electrical current—or flow of electrons—can tunnel through barriers that would ordinarily restrain them.

Scientists quickly realized that Josephson's theory could form the basis for wondrous superconducting switching devices. Depending on the presence or absence of a small magnetic field, electrons would cross from one side of the barrier to the other, as in a transistor, but with a significant difference: the amount of current in a Josephson junction would be infinitesimally small. That would keep down the amount of heat generated, and thus the circuitry could be even more tightly packed. By the late 1980s, IBM scientists envision tiny computers, refrigerated inside tanks of liquid helium, that operate a hundred times as fast as today's machines.

Where will it all end? Circuits in some densely packed chips are already so close that there is sometimes electron leakage between conductors—interfering with the proper working of the chip. Is technology fast reaching the limit of miniaturization? Computer scientists think not. They point to the stupendous amounts of data contained, for example, in a DNA molecule—or in one-celled animals and plants that are visible only under a microscope. Says M.I.T.'s Michael Dertouzos: "Even the amoeba is a far smaller and far more powerful information processor than today's best chips." If nature can do it, scientists feel challenged to try it too.



Microscopic view of Josephson junction
Aiming at the amoeba.

Time Essay

Toward an Intelligence Beyond Man's

Robert Jastrow is director of NASA's Goddard Institute for Space Studies and author of *Until the Sun Dies*. Computers play a daily role in his work and influence his vision of the future. Here, for TIME, he looks ahead to a new relationship between computers and people:

As Dr. Johnson said in a different era about ladies preaching, the surprising thing about computers is not that they think less well than a man, but that they think at all. The early electronic computer did not have much going for it except a prodigious memory and some good math skills, but today the best models can be wired up to learn by experience, follow an argument, ask pertinent questions and write pleasing poetry and music. They can also carry on somewhat distracted conversations so convincingly that their human partners do not know they are talking to a machine.

These are amiable qualities for the computer: it imitates life like an electronic monkey. As computers get more complex, the imitation gets better. Finally, the line between the original and the copy becomes blurred. In another 15 years or so—two more generations of computer evolution, in the jargon of the technologists—we will see the computer as an emergent form of life.

The proposition seems ridiculous because, for one thing, computers lack the drives and emotions of living creatures. But when drives are useful, they can be programmed into the computer's brain, just as nature programmed them into our ancestors' brains as a part of the equipment for survival. For example, computers, like people, work better and learn faster when they are motivated. Arthur Samuel made this discovery when he taught two IBM computers how to play checkers. They polished their game by playing each other, but they learned slowly. Finally, Dr. Samuel programmed in the will to win by forcing the computers to try harder—and to think out more moves in advance—when they were losing. Then the computers learned very quickly. One of them beat Samuel and went on to defeat a champion player who had not lost a game to a human opponent in eight years.

Computers match people in some roles, and when fast decisions are needed in a crisis, they often outclass them. The human brain has a wiring defect that prevents it from absorbing several streams of information simultaneously and acting on them quickly. Throw too many things at the brain at one time and it freezes up; it evolved more than 100,000 years ago, when the tempo of life was slower.

We are still in control, but the capabilities of computers are increasing at a fantastic rate, while raw human intelligence is changing slowly, if at all. Computer power is growing exponentially; it has increased tenfold every eight years since 1946. Four generations of computer evolution—vacuum tubes, transistors, simple integrated circuits and today's miracle chips—followed one another in rapid succession, and the fifth generation, built out of such esoteric devices as bubble memories and Josephson junctions, will be on the market in the 1980s. In the 1990s, when the sixth generation appears, the compactness and reasoning power of an intelligence built out of silicon will begin to match that of the human brain.

By that time, ultra-intelligent machines will be working in partnership with our best minds on all the serious problems of the day, in an unbeatable combination of brute reasoning power and human intuition. What happens after that? Dartmouth President John Kemeny, a pioneer in computer usage, sees the ultimate relation between man and computer as a symbiotic union of two living species, each completely dependent on the other for survival. The computer—a new form of life dedicated to pure thought—will be taken care of by its human partners, who will minister to its bodily needs with electricity and spare

parts. Man will also provide for computer reproduction, as he does today. In return, the computer will minister to our social and economic needs. Child of man's brain rather than his loins, it will become his salvation in a world of crushing complexity.

The partnership will not last very long. Computer intelligence is growing by leaps and bounds, with no natural limit in sight. But human evolution is a nearly finished chapter in the history of life. The human brain has not changed, at least in gross size, in the past 100,000 years, and while the organization of the brain may have improved in that period, the amount of information and wiring that can be crammed into a cranium of fixed size is limited.

That does not mean the evolution of intelligence has ended on the earth. Judging by the record of the past, we can expect that a new species will arise out of man, surpassing his achievements as he has surpassed those of his predecessor, *Homo erectus*. Only a carbon-chemistry chauvinist would assume that the new species must be man's flesh-and-blood descendants, with brains housed in fragile shells of bone. The new kind of intelligent life is more likely to be made of silicon.

The history of life suggests that the evolution of the new species will take about a million years. Since the majority of the planets in the universe are not merely millions but billions of years older than the earth, the life they carry—assuming life to be common in the cosmos—must long since have passed through the stage we are about to enter.

A billion years is a long time in evolution; 1 billion years ago, the highest form of life on the earth was a worm. The intelligent life in these other, older solar systems must be as different from us as we are from creatures wriggling in the ooze. Those superintelligent beings surely will not be housed in the more or less human shapes portrayed in *Star Wars* and *Close Encounters of the Third Kind*. In a cosmos that has endured for billions of years against man's mere million, the human form is not likely to be the standard form for intelligent life.

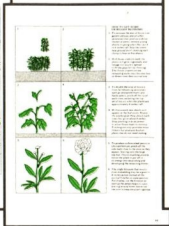
In any event, our curiosity may soon be satisfied. At this moment a shell of TV signals carrying old *I Love Lucy* programs and *Tonight* shows is expanding through the cosmos at the speed of light. That bubble of broadcasts has already swept past about 50 stars like the sun. Our neighbors know we are here, and their replies should be on the way. In another 15 or 20 years we will receive their message and meet our future. Let us be neither surprised nor disappointed if its form is that of Artoo Detoo, the bright, personable canister packed with silicon chips.



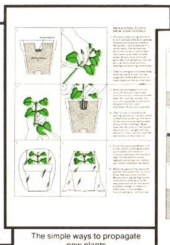
Eerie image of computer-human symbiosis
No place for carbon-chemistry chauvinists.



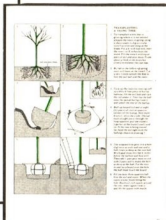
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Warning: The Surgeon General Has Determined
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Law

Ford's \$128.5 Million Headache

The trend is toward huge awards to victims

Richard Grimshaw, 13, was riding with a neighbor on a road near San Bernardino, Calif., six years ago when another auto plowed into the rear of their Ford Pinto. The Pinto's gas tank ruptured, filling the passenger compartment with flames that mortally injured the driver and spread burns over 90% of Richard's body. Since then, the badly scarred teenager has undergone more than 50 operations. When the case went before a Santa Ana, Calif., jury six months ago, the plaintiffs charged that even though Ford's own crash testing had revealed weakness in Pinto gas tanks and excessive gas leakage, the company chose not to spend the

of hand. According to the Department of Commerce Interagency Task Force report issued last November, "The law of product liability has become filled with uncertainties, creating a lottery for both insurance rate makers and injured parties." Although the average cost of product liability insurance is now 1% of sales, the rate is more than ten times higher for some small manufacturers of high-risk products, such as trampolines, air rifles and football equipment. An increasing number of companies are "going bare," dropping coverage altogether.

The complaints are part of a chorus of protest against costly personal injury awards especially in product liability and medical malpractice. Jury Verdict Research Inc., an Ohio organization, says that the first such award for \$1 million was recorded in 1962. Fifty-nine more were returned in the next ten years, and another 145 in the past five. Under economic pressure, several insurance firms began an aggressive public relations campaign, including up to \$10 million worth of hard-hitting "advocacy advertisements" in publications such as *TIME*, *Wall Street Journal* and *New Republic*. The ads point to "windfall awards" and suggest that jurors must eventually pay for them through higher premiums.

Personal injury lawyers are beginning to fight back. Attorneys in New York and California have complained to the Federal Trade Commission, urging that corrective ads be ordered. Two weeks ago, Bridgeport, Conn., Lawyer Theodore Koskoff filed a lawsuit on behalf of four plaintiffs awaiting jury trials, charging the insurance companies with what amounts to jury tampering.

Koskoff's suit points out that in some ads, the insurers claimed 1 million product liability suits are being brought each year; the Interagency Task Force put the figure at no more than 70,000. At least one jury verdict, in a Milwaukee suit, was thrown out because a juror brought an insurance ad into the jury room. Still, says Douglas Alsbaugh, Aetna Life & Casualty advertising director, "when you try to affect people's thinking, you can't help whether they take their awareness into a jury room or a cocktail party."

A marked shift in public opinion would be necessary to interrupt the upward cycle of jury awards. Lawyers attribute the rising spiral to increased medical costs, a hostility to well-heeled or corporate defendants, greater sensitivity to the plight of disabled victims and an increased willingness of Americans to bring suit. Insurers are pressing for legislation

to ease their burden by shortening statutes of limitation, putting a lid on lawyer contingency fees, and setting up Government reinsurance funds. But plaintiffs' lawyers insist that large awards often benefit society. Says Claremont, Calif., Lawyer William Shernoff: "I've seen case after case in which a company reformed shoddy business practices after being hit with punitive damages. It really works."

Insurance officials wonder. They portray trial lawyers as hired gunslingers who play on jurors' emotions to win unreasonable awards. The lawyers meanwhile paint insurance companies as profit-hungry and indifferent to the welfare of victims. Says Duane Gingerich of The Research Group Inc., a national legal analysis firm: "The enmity between insurers and trial lawyers is deteriorating into trench warfare."

Academic experts believe both sides



Richard Grimshaw in Santa Ana, Calif.

A lottery for rate makers and victims.

\$10 per car it would have taken to correct those faults. Last week the jury socked Ford with a \$128.5 million verdict: \$666,280 to the dead driver's family, \$2.8 million to Richard in compensatory damages—and a whopping \$125 million in punitive damages for the youth.

Richard's was easily the largest personal injury award in U.S. history, and experts are certain it will be reduced on review or settled at a lesser amount. While acknowledging the anguish of Grimshaw's injury, Ford asserted that the award is "so unreasonable and unwarranted that it will not be upheld." The 1972 Pinto, added the company, "met all applicable federal safety standards. It was not defective in construction or design."

The decision underscores complaints from manufacturers and insurers that rapidly inflating jury awards are getting out



Too bad judges can't read this to a jury.

A truck without brake lights is hit from behind. For "psychic damages" to the driver, because his pride was hurt when his wife had to work, a jury awards \$450,000 above and beyond his medical bills and wage losses.

A 65-year old factory worker loses an arm on the job. His lawyer argues that he should receive wages for all the

Aetna advocacy advertisement

Deteriorating into trench warfare.

are overreacting. Says Yale Law Professor Guido Calabresi: "Those ads are outrageously one-sided, even silly. They suggest that the occasional huge jury verdict drives up rates, when the real cause is overpayment of small claims. But the insurers clearly have a First Amendment right to influence legislation." Adds University of Illinois Professor Jeffrey O'Connell: "A court clampdown on advertising is a raw, brutal way of handling the problem. Plaintiffs' lawyers are adequately protected by *voir dire* [jury selection] procedure." Most analysts doubt the trial lawyers will succeed in muffling the insurers but see the lawyers' maneuvers as effective nonetheless. Says The Research Group's Gingerich: "The insurance companies and trade associations will have to be much more careful in representing the nature and scope of the problem." ■

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*Value Bonus Package requires optional power steering

**Based on eight interior dimensions

Volaré shown with Value Bonus Package and optional custom exteriors.



28 **20**
HWY CITY



*Based on EPA estimates for sedan and coupe with 6-cylinder, 1-bbl. engine with manual transmission. Your actual mileage may differ depending on your driving habits, the condition of your car and its optional equipment.



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CHRYSLER-PLYMOUTH DEALER!

Cinema

The Dark at the End of the Tunnel

COMING HOME Directed by Hal Ashby
Screenplay by Waldo Salt and Robert C. Jones

In his 1975 comedy *Shampoo*, Director Hal Ashby drew a scathing portrait of privileged Americans living in selfish bliss during the Viet Nam War. *Shampoo* was set in Beverly Hills against the pointedly ironic background of the 1968 presidential election; its characters were upper-middle-class philanderers whose lives revolved around the chic local beauty salon. Throughout the film, sad news from Southeast Asia blares forth from radios and TV sets, but no one in *Shampoo* both-

(Jane Fonda), the wife of a volatile Marine captain (Bruce Dern) who goes off to Viet Nam determined to bring back a Communist machine gun as a souvenir. Sally had been a typically docile service housewife, living in a tacky-tacky base apartment, but her husband's absence forces her to change her ways. She takes up volunteer work at the base hospital, makes new friends and asserts her independence by renting a beach bungalow and buying a sports car. More daring still,

his cast. In the film's dominant performance, Voight shows Luke's pious arrogance as well as his tenderness; if the character were too sweet, he would be as goopy as Gershwin's Porgy. Fonda, though unconvincing in Sally's pre-liberation scenes, ultimately brings her character's horrifying internal conflicts to the surface. Even Dern, stuck with the same crazy-soldier role he played in *Black Sunday*, manages to keep his anguish from seeming canned: as he realizes that both his wife and the war have betrayed him, the character's manic energy evaporates. Dern perfectly captures the unnerving calm of a man who has lost the will to live.

At times *Coming Home* is too ambitious for its own good. The screenplay not only spins the tale of a tragic love triangle, it also attempts to chronicle Sally's growing political radicalization and her feminist-styled friendship with another woman on base (Penelope Milford). In the film's second half, the narrative extravagance takes its toll. Contrived plot devices, including the suicide of a minor character and the sudden intrusion of malevolent FBI agents, spring up to jerk *Coming Home* toward its conclusion.

Once the finale does arrive, it turns out to be a cheat. The story's relationships are not satisfactorily resolved, and we are left with a melodramatic denouement that recalls, of all movies, the Judy Garland version of *A Star Is Born*. It is quite a comedown from *Coming Home*'s superb opening sequence, in which maimed veterans heatedly debate the war over a game of pool.

There are also occasions when Ashby reaches for cheap ironies. Luke's passionate lovemaking is glibly contrasted to the mechanical bedroom manner of Sally's husband. The vintage rock songs on the sound track, while important to the film's sense of period, are sometimes used to comment upon the action too literally.

Yet none of these flaws rob *Coming Home* of its considerable bite. Whenever the movie starts to lose its way, Ashby stages a powerful scene to bring the war back home. In one of them, Sally meets her husband in a sad Hong Kong hotel room while he is on leave from the front. "My men were chopping the Viet Kong's heads off," Dern announces, almost matter-of-factly, "and that's what they were into." In another, Luke speaks before an assembly of high school boys, counseling them to avoid the draft. "There was a lot of shit over there I find f---ing hard to live with," Luke tells the kids, as his voice starts to crack. "But I don't feel sorry for myself. I'm just saying that there's a choice to be made." At such moments *Coming Home*, like *Shampoo* before it, reminds us of the choices everybody made during those harrowing war years—and of the price the nation paid thereafter.

—Frank Rich



Jon Voight and Jane Fonda as wartime lovers in *Coming Home*
Bringing the conflicts of Viet Nam back to Southern California.

ers to listen. They are all too busy getting ready for a Nixon victory party that night to care about a war that seems a million miles away.

Coming Home, Ashby's latest film, is the flip side of *Shampoo*—and its perfect companion piece. Also set in Southern California in 1968, the movie is about those unfortunate Americans who could not escape the war's deadly grasp: the men who fought in Viet Nam and the women they left behind. Like *Shampoo*, *Coming Home* offers a devastating vision of this country's recent social history, but the new film is no comedy. *Coming Home* is, as its material dictates, one long, low howl of pain.

The movie centers on Sally Hyde

she falls in love with Luke Martin (Jon Voight), a bitter paraplegic Viet Nam veteran who turns her against the war her husband is fighting.

Sally and Luke's romance is the heart of *Coming Home*. Though the illicit affair of a beautiful woman and a cripple is potentially mawkish stuff, Ashby usually does not allow his story to become overly sentimental. He does not view the couple's relationship as a panacea for all their emotional problems, and he refuses to shy away from harsh detail. When Luke finally leaves his wheelchair to join Sally in bed, the hero's handicaps bring the ensuing sex scene an added poignance.

The director's clear-eyed approach is further enhanced by the sharp acting of

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Cinema

Ego Trip

RENALDO AND CLARA

Directed and written by Bob Dylan

More than any other pop figure, Bob Dylan embodies the angry spirit of the '60s: his supercharged voice perfectly evokes the upheavals that defined an extraordinary decade in American life. For this reason—and this reason only—his new movie is not a complete waste of time. When Dylan bursts into song in *Renaldo and Clara*, dozens of powerful memories come flooding back; a dreadful film becomes a resonant historical document. If its creator had any sense, *Renaldo and Clara* would be locked away in a time capsule somewhere, rather than exhibited in movie theaters.

The film's musical sequences were recorded during Dylan's Rolling Thunder Revue of 1975-76 when he barnstormed the continent with other illustrious troubadours. Unfortunately, the concert footage accounts for less than half of the movie's four-hour running time. The rest consists of improvised fictional scenes that are meant to impart Dylan's metaphysical view of the universe and himself—though not necessarily in that order. Dylan plays a masked entertainer named Renaldo. His then wife Sara plays a nonentity called Clara. Singers Ronnie Hawkins and Ronee Blakley appear as Bob and Sara, while Joan Baez traipses around as a mysterious "woman in white." Allen Ginsberg and Sam Shepard turn up in equally transparent disguises.

Nothing weighty emerges from these characters' random encounters. What the film does produce is an unflattering portrait of Bob Dylan's ego. Almost all the characters—including the performers he elbows off-screen in the musical numbers—treat the hero with dumb-struck reverence. Grateful Indians and blacks gleefully accept his political support. Worse still, Dylan fills *Renaldo and Clara* with self-deifying Christ images. At least we are spared a crucifixion scene.

By the time the movie is over, Dylan has amply demonstrated his contempt for a moviegoing audience. He borrows conceits from Bergman and Buñuel to show off his superficial knowledge of art-house movies. He strives for incoherence in the belief that pointless ambiguity can pass for an avant-garde aesthetic. He tries to arrive at dramatic truth by letting fuzzy conversations drag on interminably. Andy Warhol made similar home movies more than a decade ago—but he at least made them with a sense of humor.

If there are no laughs in *Renaldo and Clara*, there is some unintentional pathos. By staging absurd improvisations with a straight face, Dylan demonstrates just how desperately he wants to hold on to the Woodstock ethos of the counterculture. But times have changed. Of all people, Dylan should know that.

—F.R.

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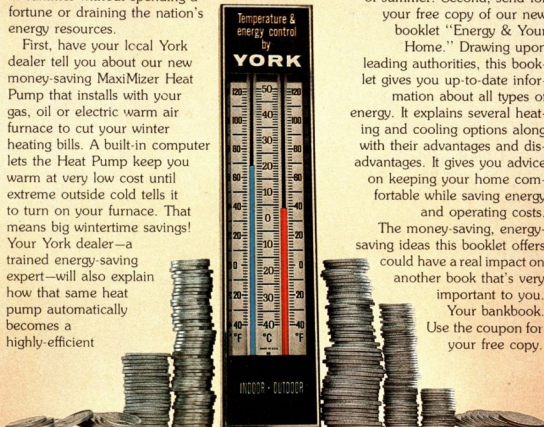
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Energy

Dimming Chances for Carter's Bill

A compromise on gas prices and oil taxes proves elusive

He called it the moral equivalent of war, but President Carter's battle against energy waste seems to be winding up the moral equivalent of Pickett's Charge. Carter's energy bill is not dead yet, but its vital signs are fading. Congress adjourned last week for its ten-day Lincoln's Birthday recess, leaving the measure comatose in a House-Senate conference committee and the nation not much closer to a comprehensive energy program than it was when Carter first unwrapped his plan last April.

Of the complex package's 113 items, two have caused all the problems. One seeks to extend federal price controls to natural gas that never leaves the state where it is produced (only gas piped across state lines is now regulated), but would raise the ceiling by about 19%. The increase would give producers more incentive to explore for new fields. The other section would increase the price of domestically produced crude oil by some 63% over the next three years through a federal tax on producers. This would bring prices to world levels set by OPEC and thereby discourage consumption.

Though both provisions slid easily enough through the House, the Senate called for total deregulation of gas prices and rejected the oil tax, leaving it to a joint conference committee to thresh out a compromise. The committee has been stymied on the natural gas question and by the fractious and squabbling performance of its Senate members. As a result, it has not even got to the crude oil problem.

The committee's dilemma is how to satisfy Senate forces led by Louisiana Democrats Russell Long and Bennett Johnston, who insist on a free market for natural gas, and Carter, who has repeatedly vowed to veto any bill that abruptly decontrols gas prices. The problem is complicated by another Senate bloc, this one led by Ohio Democrat Howard Metzenbaum and South Dakota's James Abourezk, both of whose states are heavily dependent on natural gas; they therefore demand that a federal lid be kept on gas prices. Democrat Henry Jackson, chairman of the Senate Energy and Natural Resources Committee, has been struggling for more than a month to cobble together a compromise deal featuring

phased-in decontrol and higher controlled prices in the meantime, but so far he has been unable to find majority support among his Senate colleagues on the joint committee for any formula.

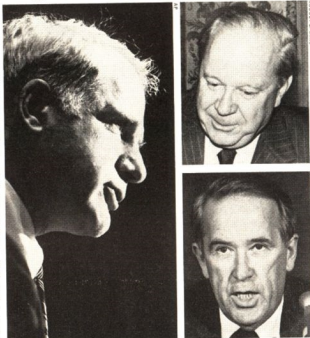
Last week a palpable sense of urgency surrounded his efforts, and for good reason. At week's end Jackson was leaving for a two-week China visit, and since a natural gas deal could not be worked out before then, Congress would recon-

Whatever the outcome, the bill is still a far cry from the comprehensive energy package that the nation desperately needs. A fair amount of the blame must go not only to Congress but also to Energy Secretary James Schlesinger, the principal architect of the bill. Last winter he accepted Carter's almost impossible deadline of three months for producing an energy plan, then went about it by surrounding himself with a dozen trusted young staffers from the Washington bureaucracy. Without seriously soliciting the views of Congress, the cabal cooked up the plan in a semisecret fashion and presented it to Carter, who in turn pressed it on the nation.

With its emphasis on conservation, the bill fails to give sufficient incentive to business to increase production of oil and gas. It gives little attention to nuclear power and practically none at all to the energy available from unconventional sources such as shale oil, underground steam and the sun.

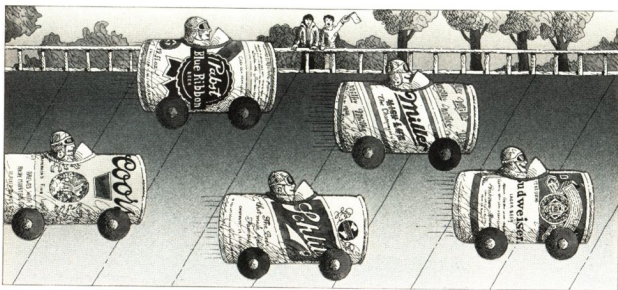
In the event that Congress cannot find the will to compromise on the bill's oil and natural gas features, Carter is considering using his Executive power to levy a \$5-per-bbl. import tariff on foreign oil, raising its price to about \$17.70. This would at least send a signal to the rest of the world that Washington is serious about reducing its oil imports and strengthening the dollar. But it would also boost inflation somewhat at home and have little effect on increasing energy production domestically. What is needed is an energy bill that frees oil and gas prices, thus spurring conservation and giving producers more incentive—and capital—to find and develop new sources.

TIME has learned that whether such measures are adopted or not, a Son of Energy Bill is already in the works. Reports Correspondent Don Sider: "Around Schlesinger's shop they're calling it National Energy Plan 2, and Schlesinger wants it ready as quickly as possible. It will be a catalogue of alternative energy approaches and will provide federal aid for developing and bringing to market solar power, wind and water power, coal gasification, the extraction of oil from shale and the generating of electricity by burning garbage and municipal wastes." That is some good news, and it can be made even better if Carter and Schlesinger learn from their past mistakes, as aides say they have, and seek out the advice of people who will be affected by the bill before sending it to the Hill.



Secretary Schlesinger (left); Senators Long (top) and Jackson
Considering tariffs on imports and moves to develop alternatives

vene on Feb. 20 to find a host of non-energy matters, including the Panama Canal treaties and Carter's 1979 budget, on its plate. It is still possible, of course, for a natural-gas deal to be hammered out after Congress returns. Indeed at week's end the gloom lifted slightly when it was learned that the conferees had come very close to shaking hands—before backing off—on a deal suggested by Jackson to raise the ceiling on interstate natural gas from the present \$1.47 per thousand cu. ft. Key features of the plan: a starting price of \$1.84 increased by inflation plus 3% each year until 1985, when controls would end. Now, declared a top Jackson aide, "the clock is running against us. Politicians never like to say, 'This is the end,' but it will be tough to re-create the mood and momentum for compromise."



Economy & Business

Beer: Big Battles Are Brewing

Pots of money plus hard marketing are the basic ingredients

Tradition, order, simple marketing methods, sales that rose reliably in good times and bad—all these were qualities of the beer business a few years ago. Now the \$16-billion-a-year industry is being shaken by a costly battle for market shares that has sent some brewers to search for cash-heavy merger partners, other companies to reassess their marketing strategies, and nearly all the well-known firms to bring out new brands to curry the customers' fickle favor. Small regional brewers can scarcely keep afloat, with the result that sales are increasingly concentrated among the Big Five. Since 1972, Anheuser-Busch, Miller, Jos. Schlitz, Pabst and Coors have increased their combined share of the market from 55.5% to just over 70% last year.

The market has been rolling ever since Philip Morris in 1970 acquired full control of Miller Brewing, a Milwaukee company with a well-known label but stagnant sales. In came a team that knew little about the relative merits of hops and barley but was highly skilled in the arts of advertising, packaging, cost analysis and marketing. John Murphy, who was Philip Morris' chain-smoking, beer-quaffing international executive vice president, was made head of Miller, and he brought to his office the same marketing drive that had made Philip Morris the biggest American tobacco company in Europe, Africa and Latin America. Says Murphy: "You never set out to become No. 2."

Spending \$500 million to expand in the beer business, Miller introduced the 7-oz. "pony" bottle and bought the Lite label for its low-calorie brew, which became a runaway success. Miller staged a high-budget ad campaign that featured Mickey Spillane and ex-Football Star Bubba Smith to give a macho image to Lite. In order to crack the highest-priced market

segment, which has been dominated by Anheuser-Busch's Michelob and imports, Miller last October began national sales of Löwenbräu made under license in its U.S. breweries.

With all this, Miller surged from seventh place in 1972 to edge out Schlitz for second place last year, with net sales of \$1.1 billion and operating income of \$106 million. While industry volume grew by 4%, Miller reported an increase of 31.6%. Of Philip Morris' \$500 million capital budget in 1978, more than half will be devoted to Miller, a ratio that will continue for several years. The aim is to raise capacity from just over 24 million bbls. to 40 million bbls. by 1980 and draw even with Anheuser-Busch by 1983.

That will take some doing. Anheuser, which had 23% of the market last year, outsold Miller, 36.6 million bbls. to 24.2 million bbls.: the St. Louis company rang up sales of \$1.8 billion and pretax profits of nearly \$170 million, both records. It has been willing to spend to match Miller in every segment of the market. Anheuser's Natural Light has overtaken Miller Lite in some markets, and Michelob has a wide lead in the battle with Löwenbräu.

This week Anheuser will announce the introduction of Michelob Light in major markets. Says Chairman August Busch III, the founder's great-grandson, also a brewmaster: "You will see other marketing and product innovations as the year



Anheuser Chairman Busch examining hops
A cigarette maker has shaken the market.

unfolds." Industry scuttlebutt has it that Anheuser is contemplating a move into soft drinks, "where profit margins and growth are larger than in brewing."

Hurt by the drives of Miller and Anheuser, the sales of Milwaukee-based Schlitz slipped last year from 24.2 million bbls. to 22.1 million, and pretax profits plunged from nearly \$97 million to \$35 million. The Uihlein family (pronounced *Ee-line*), which controls 75% of the stock, is squabbling over methods to recoup. Chairman Daniel McKeithan Jr., an Uihlein-in-law before his divorce in 1974, has brought in some outside executives and is seeking a new advertising agency to change the company's cheap-beer image. Schlitz is also thought by some to be for sale: merger talks with cigarette-making R.J. Reynolds Industries (Winston, Salem, Camel) broke off three weeks ago.

Milwaukee's Pabst, with sales off from 17 million bbls. to 16 million last year, is also looking for a compatible partner. President Frank DeGuire, a onetime Marquette University law professor, says he would welcome a company "with deep pockets." Management is fighting a takeover bid by APL Corp., an \$80 million New York-based manufacturer of tissue paper, plastics and vitamins. DeGuire thinks APL is too small. He reckons that Pabst, which is strong in the Midwest but weak elsewhere, will have to spend \$150 million to build a new brewery, an additional \$80 million to expand existing plants. Says he: "Philip Morris has raised the ante for staying in the game."

Coors, the fabled company in Golden, Colo., that was on a Rocky Mountain high for years also declined in 1977, from 13.7 million bbls. to 12.8 million. Part of the drop was due to a bitter strike that led to a customer boycott; it has been particularly damaging in California, where Coors has lost its leadership to Anheuser-Busch. Coors also suffered under the new competition because it long had paid little attention to marketing, figuring that its popular product would just "walk off the shelves." As a regional brewer that sells almost all its beer to 16 states concentrated in the West, Coors cannot hope to match the ad budgets of the national firms. Even so, Vice President Peter Coors concedes that the family company has to make a basic policy change. Says he: "We must now begin actively marketing our product to guarantee our survival in an intensely competitive industry."

So too must many of the 42 other smaller regional breweries, whose overall market share has been shrinking. Those embattled companies might adopt at their anthem the jingle composed by Irish Novelist Brian O'Nolan in praise of Guinness stout, a brew so syrupy that a well-fed mouse could safely tread across its creamy head.

*In time of trouble and lousy strife,
You still have a darlint plan.
You still can turn to a brighter life,
A pint of plain is your only man.*

Collapse of the Coal Pact

Ban on wildcat strikes rouses the miners' wrath

The meeting was supposed to begin at 10 a.m., Friday, at United Mine Workers headquarters, two blocks from the White House. The coal strike was nearing its 70th day, and Union President Arnold Miller hoped that the 39-member U.M.W. bargaining council would approve the proposed new contract that he and his aides had negotiated with the coal operators. But angry miners by the hundreds had journeyed to Washington, and they camped like an occupying force in the headquarters' lobby.

"No, no," shouted the protesters. They papped the walls with slogans of crude double-entendre: WHAT DID YOU GET US, ARNIE—THE SHAFT? Though the dem-

increase nearly 37%. But the contract also authorizes stiff penalties for absenteeism and, more important, seeks to do away with wildcat strikes. It allows mineowners to discipline wildcatters by requiring such strikers to pay \$20 a day, for up to ten days per month, into the U.M.W. benefit funds. Many miners have grown up deeply suspicious of the owners' reliability in complying with contract provisions and of the industry's grievance procedures. With minimal provocation, miners often just walk out.

Precisely such wildcat strikes have long hobbled the coal industry and prevented it from attaining higher productivity. Indeed, the White House, looking



Protesters occupy U.M.W. headquarters under a bust of the late union leader John L. Lewis

With supplies running short, the dissidents believe they hold a strategic advantage.

strators pledged nonviolence, Miller did not enter the building. Charging them with "intimidation and threats," he postponed the meeting and later said testily: "There cannot be any further collective bargaining until this irresponsible action ceases." In his absence, members of the bargaining council took an unofficial vote. The panel of district leaders, reflecting deep dissatisfaction among the rank and file, voted down the contract, 33 to 3.

What provoked the rebellion against the settlement, which Miller had described as "by far the best agreement negotiated in any major industry in the past two years"? For most dissidents, money was not the rub: the agreement offers miners pay raises, over three years, that would lift their average hourly wage from \$7.80 to \$10.15. In all, wages and fringes would

forward to new heights of output from the miners, said nothing about the settlement's obvious inflationary effects.

At week's end the bargaining council had no plans to reconvene until, as Miller said, "the meeting can be held under orderly and constitutional procedures." The dissident miners believe they hold a strategic advantage because coal supplies are fast falling short, particularly in the Middle West. All over that region utilities have been cutting back services. President Carter will try his powers of persuasion on the miners and operators. He has reason not to invoke the Taft-Hartley Act. As Robert Little, who came from Harlan County, Ky., to demonstrate, put it: "They can make us go back and work—but at what rate of speed? I can work awful slow."

Economy & Business

White House Encounter

A try at building support

A procession of limousines crammed the White House driveway last Friday, as 50 of the most powerful leaders of U.S. business accepted an invitation for an off-the-record exchange of views with ranking Administration officials. Among them were the chiefs of Exxon, General Electric, Du Pont, Merrill Lynch, National Steel, B.F. Goodrich and Boeing. The Administration was engaged in one of the most ambitious public relations campaigns to be aimed at the business com-

and its disregard for the private sector. But, she added, "we have made substantial progress in all three areas."

Treasury Secretary W. Michael Blumenthal chided the businessmen for so solidly opposing the President's tax bill. In reply, some of the guests asked why, at a time of record trade deficits, the Administration was seeking to end the provision deferring taxes on some export profits and earnings abroad. Blumenthal argued that other offending proposals—notably the recision of tax advantages for capital gains—had been eliminated. He urged the businessmen to support the provisions they approved of rather than oppose the entire bill. But when he said the economy was doing well in all respects except the stock market, one guest cried: "In effect we are in liquidation! How can you say we are doing all that well?" The mood became even chillier when discussion turned to Carter's energy program. "It was about as intense and hostile as anything I have ever observed," said one participant. Charles Schultze, chairman of the President's Council of Economic Advisers, put the blame for the delays in passing the energy bill "at the other end of Pennsylvania Avenue"—meaning the Senate. Protested one business leader: "The problem is right here."

PHOTOGRAPHS BY RODNEY E. WINS



Du Pont's Irving Shapiro



Eastern's Frank Borman



NL Industries' Ray Adam and Goodrich's O. Pendleton Thomas

For the meeting, a guest list of top executives.

munity since Lyndon Johnson's day. The goals: to build support for Carter's tax package and to reassure business leaders, who have been unimpressed with the President's handling of the economy, that the Administration wants them as allies. Similar meetings are being held with leaders of labor, blacks and other groups.

When the business leaders took seats in the State Dining Room, Commerce Secretary Juanita Kreps conceded that the Administration had been criticized for its inability to communicate with the business community, its lack of a program on which businessmen could base their plans,

and its disregard for the private sector. But, she added, "we have made substantial progress in all three areas."

Jimmy Carter popped into the 2½-hour session for only five minutes. As he spoke, a helicopter settled on the South Lawn of the White House to whisk him and Rosalynn to Camp David for the weekend; parts of his remarks were drowned out by the roar of the rotors. He urged the businessmen to support the Panama Canal treaty. Commented Eastern Air Lines Chairman Frank Borman, who had come with hopes for more forthright pronouncements on energy: "I'm all for the treaty."

White House encounter sessions may be important in establishing communication between the Administration and business. Some corporate chiefs say that relations have improved lately because Carter and his Cabinet are beginning to listen to them. William Hewitt, the chairman of Deere & Co. (farm equipment), reflected on last week's Administration spokesmen: "They said nothing new, but there is no disadvantage in that." Added Roger Birk, president of Merrill Lynch: "Such communication is a positive thing, and it does help business confidence." ■

Superior Seduction

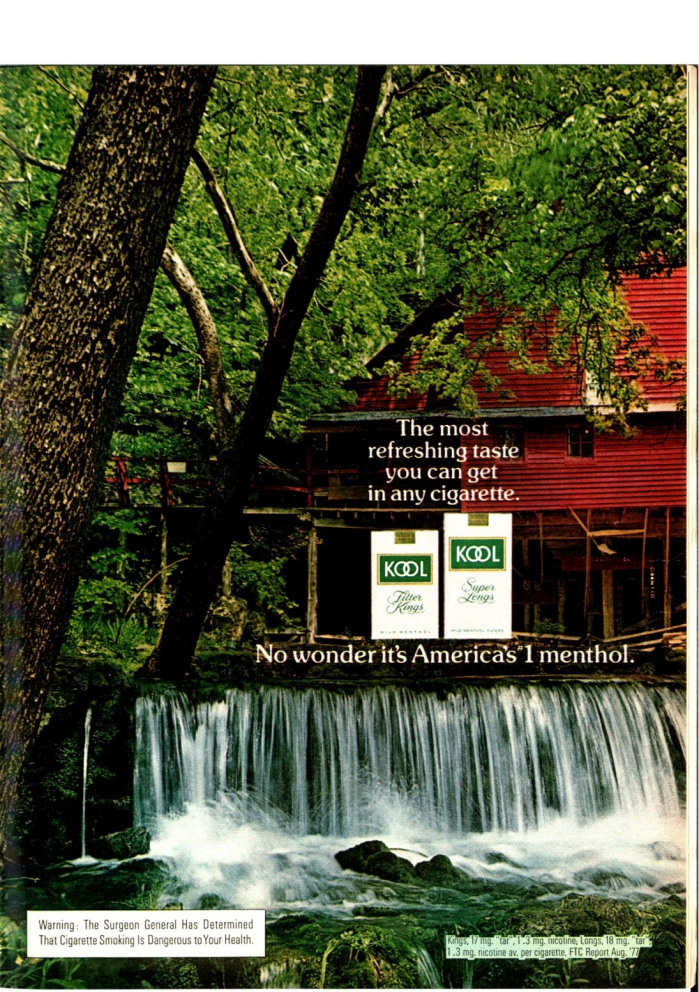
Mobil sues to protect secrets

In the bruisingly competitive oil industry, raiding a competitor's talent is a common tactic—but there are limits. Mobil Oil Corp. has charged that pesky Superior Oil has gone too far. In suits filed in Houston and in Calgary, Alberta, Mobil accuses Superior of luring away no fewer than 32 exploration and production experts to acquire top technical secrets. Mobil wants the courts to enjoin the defectors from spilling the beans and to force Superior to pay damages for any information already obtained.

It might seem a case of Goliath accusing David of dirty tricks: In 1976, Mobil's revenues were \$25 billion, whereas Superior's were \$441 million. But Superior has long had a brass-knuckle reputation. It was founded by William M. Keck, a flamboyant wildcatter ever on the alert for new oil, fresh profits and the main chance. In this pursuit, President Howard B. Keck, who took over at his father's death in 1964, is also relentless. Superior's success at sniffing out crude deposits has made it a darling of the New York Stock Exchange; last week its shares shot up 18 points to hit 279 and thus become the highest priced stock on the Big Board, ahead of IBM. Highly profitable (earnings were \$51 million in 1976), Superior reportedly offered 100% pay increases to some Mobil runaways.

One of these, identified by Mobil in its U.S. suit, was H.R. Hirsch, formerly titled "exploration manager-technical," who left with a "specific and detailed knowledge of oil and gas prospects." That put Hirsch in a position to save Superior much time and money by telling which areas looked promising and which were duds. Mobil says he also knew its secret bid calculation process, a complicated method of outguessing the competition in order to make bids for oil leases as low as possible, yet still win them. The Canadian suit named Arne R. Nielsen, president of Mobil Oil Canada, who was well versed in highly classified and arcane Mobil technology, including its airborne radar propane seep detector and computer graphics modeling system.

Mobil is particularly concerned about protecting information obtained from its highly expensive seismicographic surveys of land and offshore sites. The company's spending for exploration tops \$200 million a year. Such expenditures are beyond the reach of smaller firms, which often deal in the thriving black market for oil maps and aerial surveys. In taking its case to court, Mobil is hoping that, if nothing else, the feisty wildcaters at Superior will have second thoughts about seducing people who hold secrets. ■



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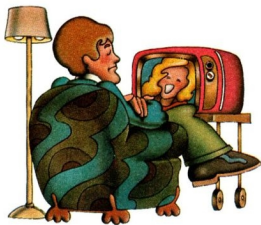


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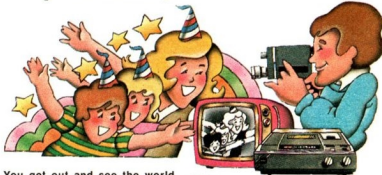
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A busy street crowded with stores and shoppers in the capital of Panama City; copper mining at Cerro Colorado near the Costa Rican border

Panama's Rewards of Ratification

Those treaties could unlock a lot of investment

Panama's controversial canal is not the only thing in that country under water; so, too, is its economy. During the past several years of hot debate and demonstrations over the fate of the canal, moneyed Panamanians and foreign investors have been reluctant to sink cash into the country. They are even less willing to do so now, fearing that Panama could be thrown into turmoil if the U.S. Senate fails to ratify the canal treaties. But if the treaties are adopted, Panamanians believe, investment, and their economy, will surge.

The \$2 billion-a-year economy has not grown at all since 1975, when it rose a meager 6%. Unemployment, says the government of Brigadier General Omar Torrijos, runs at 11%, but unofficial estimates put it at twice that much. It has fallen upon the government to become the employer of last resort, and since late last year Torrijos has created 22,000 new jobs, mostly make-work. Inflation, mercifully, has dropped from 30% in 1974 to less than 10%, and a new sales tax added some \$35 million to government coffers last year. But the \$432 million budget (9% of it allotted to the military) has a deficit of \$89 million, and the national debt stands at \$1.6 billion. That translates into \$930 for each of the 1.7 million Panamanians—only \$270 less than per capita income.

Like other oil-importing countries, Panama was savaged by the OPEC-induced recession. Torrijos' populist policies did not aid recovery. A law making it difficult for landlords to evict rent-delinquent tenants halted private housing construction, and new hiring has been discouraged by labor regulations that

make the firing of employees a byzantine process. In 1973 the government concluded that salvation lay in growing more sugar: the industry is labor-intensive and world prices were high, but they have since fallen. Recently the government warned that 20,000 more workers will be idled and the economy will tumble into worse shape when the sugar harvest is completed in April. Not coincidentally, the ratification showdown on Capitol Hill should occur near then.

In terms of hard cash, ratified treaties would hardly be a panacea. The canal now contributes, indirectly, some \$250 million a year to the economy in the form of wages of Panamanians, local purchases by the U.S. Government, and so forth. Panama gets \$2.3 million in an annual payment from the U.S. for the right to run the canal. After ratification, the Torrijos government would get a cut of canal operations. It is counting on \$60 million the first year, rising to \$90 million annually by the year 2000. That presumes a 30% increase in canal tolls. But tolls have already gone up more than 40% since 1974, and another large increase might cause shippers to look more favorably on longer but cheaper alternatives.

The U.S. has promised Panama \$290 million in loans over the five years following ratification, plus \$50 million in military aid over ten years. This income, says Pedro Rognoni, president of Panama's Industrial Association, "will not solve the economic problem—that will be solved only by production." There are many possibilities for development. The Cerro Colorado copper deposit, near the

Costa Rican border, is thought to be among the world's largest. Bananas are the country's biggest export, and there is ample room for more plantations if money can be found to continue clearing the green jungle. Shrimp is already big business, and the World Bank is financing the construction of a fishing port at Vacamonte on the Pacific coast. Though Panama's lone cement plant, which is privately owned, is now operating at only half of its capacity, the government is finishing up a new \$68 million plant of its own that is scheduled to begin production late this year. Torrijos' advisers are sure that with recovery, both plants will be going at full tilt.

Still, Panama's economy is weighted toward service industries, and there lies the biggest growth potential. Some businessmen think the government should expand the single-track Panama Railroad to handle more traffic in the containers borne by ships too large to navigate the canal. The free-trade zone in Colon already contributes 7½% of the gross domestic product; the zone could spread onto American-occupied land near by that would be ceded to Panama under the treaties. Panamanians are even now enlarging the country's international financial center, an outpost of 81 banks from all over that are lured by the country's easy tax and currency-convertibility laws. The dream: to make Panama a kind of Latin Switzerland.

If the treaties are torpedoed, says Panamanian Economist Guillermo Chapman, unemployment could reach 30% and "growth" could shrivel to minus 3% yearly. It is only fair to add that if the treaties are ratified and the economy fails to recover, the Panamanians will have no one to blame but themselves. ■

Workers processing country's biggest export at a United Brands plantation; shrimp boats anchored in front of condominiums in Panama City



Economy & Business

Boeing Plans a "Rubber" Plane

With two engines—or three

The thick smokescreen surrounding one of the biggest mysteries of commercial aviation is clearing at last. Airlines will soon have to replace their aging fleets of about 1,500 707s, 727s and DC-8s, but existing models are too big or too small to meet the demand for an intermediate-range plane carrying 180 to 200 people. Many aerospace manufacturers have been reluctant to build new planes until they learn what Boeing, the industry leader, is going to do. Now Boeing seems to have settled on a basic design for a "high technology" jet. Says Jerry Cosley, TWA's director of technical information: "It could set standards for the design and purchase of aircraft for the next two decades. But it is still only a paper plane, and airlines like to see planes fly before they make up their minds."

Boeing salesmen had been trying for nearly five years to get potential buyers to choose between a long-range, three-engine plane seating eight across and a shorter-range, two-engine model seating six across. Both had supporters, but Boeing was unable to get enough advance or-

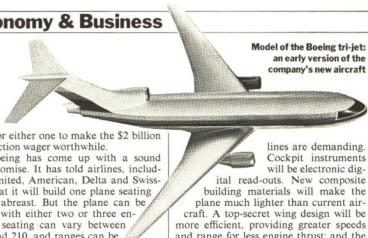
ders for either one to make the \$2 billion production wager worthwhile.

Boeing has come up with a sound compromise. It has told airlines, including United, American, Delta and Swissair, that it will build one plane seating seven abreast. But the plane can be made with either two or three engines; seating can vary between 180 and 210, and ranges can be either 2,300 or 4,600 miles. Forward of the tail, where the third engine will be located, both the tri-jet and twin-jet will be virtually identical.

Boeing still refuses to confirm the plan, but it makes sense. By offering a "rubber" airplane that can be all things to all customers, the company can hope to get enough orders to start building this summer for delivery by 1982.

The new plane, dubbed the "767" by industry sources, will look rather like a slim version of Lockheed's L-1011. It will cost from \$20 million to \$25 million and have the high technology that air-

Model of the Boeing tri-jet: an early version of the company's new aircraft



lines are demanding. Cockpit instruments will be electronic digital read-outs. New composite building materials will make the plane much lighter than current aircraft. A top-secret wing design will be more efficient, providing greater speeds and range for less engine thrust; and the engines will use less fuel and make less noise than existing jets.

Boeing's plane will face tough competition for some \$50 billion in aircraft orders expected in the 1980s. The fuel-efficient, 229-seat Airbus, made by a French-German-Spanish consortium, will be a strong challenger. Neither McDonnell Douglas nor Lockheed has yet announced new high-technology planes. Instead, they will offer modernized versions of the DC-10 and L-1011. Boeing is gambling big that the airlines will prefer an all-new plane that will still be flying, and coming out in up-to-date versions of its own, in the year 2000.



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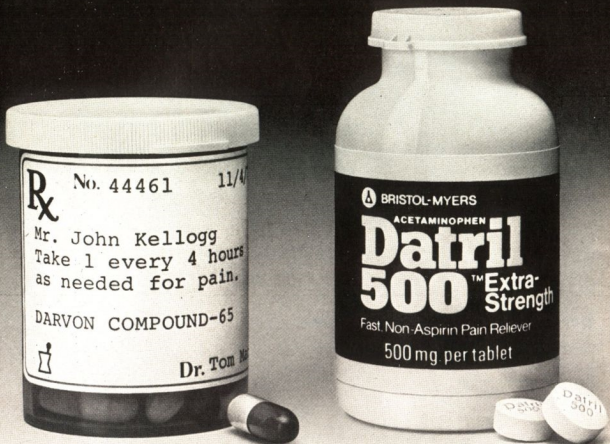
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*Hopkinson, J.H. et al. "Effective Pain Relief: Comparative Results With Acetaminophen In A New Dose Formulation, Propoxyphene Napsylate-Acetaminophen Combination, And Placebo." Curr. Therap. Res. 19:622-630, 1976. Smith, M.T. et al. "Acetaminophen Extra Strength Capsules Versus Propoxyphene Compound-65 Versus Placebo: A Double-blind Study of Effectiveness And Safety." Curr. Therap. Res. 17:452-459, 1975. The kind and amount of analgesic (acetaminophen) employed in the tests are the same as that contained in two tablets of Datril 500.

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Medicine



One of the few healthy Air Academy cadets has the library to himself

Invasion from the Steppes

Russian flu strikes, and the service academies are hard hit

It was no Soviet air strike but the so-called Russian flu that paralyzed the U.S. Air Force Academy, near Colorado Springs, Colo., last week. In one two-hour period, more than 500 cadets flocked to the academy's clinic. Then classes were canceled as three-fourths of the 4,312 cadets were hit with fevers, sore throats, head and body aches, and weakness.

Also immobilized by the viral onslaught was the U.S. Naval Academy at Annapolis, Md., where 3,000 or more of the 4,300 midshipmen were confined to their rooms and dosed with aspirin and cough medicine. Actually, it appears that the U.S. Military Academy at West Point, N.Y., had been hit by an earlier outbreak but this was not publicized. Before the end of January, 200 to 300 cadets were reporting to sick call daily at West Point. That epidemic has passed its peak but has spread across the Hudson to Vassar. Says Dr. Rita Jaeger, health director of the predominantly female college near Poughkeepsie, N.Y.: "Students here go out with men from West Point. Flu is now going across our campus. We've had 600 to 700 come into the clinic, and there are probably as many sitting in their rooms." The possibility of similar developments exists around Colorado Springs, where high school girls date cadets.

The nationwide flu picture is confused by the persistence of some A/Victoria virus left over from last winter's outbreaks and the current prevalence of A/Texas. Nonetheless, isolation of Russian flu virus has been confirmed not only at the three service academies but also in Wyoming, Colorado, Michigan and Texas, and unconfirmed reports of outbreaks are trick-

ling in from most of the other states.

While military trainees were most conspicuous among the earlier victims, Children's Hospital National Medical Center in Washington has confirmed at least two cases of the misnamed Russian flu (it actually erupted first in China last May, then spread across the steppes of Soviet Asia). A children's hospital in Memphis has confirmed another. In the majority of cases so far reported, the flu has been relatively mild with many patients recovering in three or four days. At the service academies, the cadets and middies, thanks to their generally topnotch condition, suffered lighter attacks and were making quicker recoveries than would a random sample of average citizens.

Since the Russian flu virus strain was prevalent in 1947-57, many Americans over 25 have some if not substantial immunity. As a result, few if any of the academies' faculty members were among the victims. "It's one of the advantages of being middle-aged," said Dr. Richard S. Foster, the air academy's chief medical officer. How fast this new/old flu will spread among the population at large, however, is unpredictable. It could go on a nationwide rampage within the remaining weeks of winter, or spread slowly, person to person, until next fall's flu season.

Center for Disease Control virologists and immunologists, as well as officials at the Department of Health, Education and Welfare in Washington, have been debating for a month what sort of flu vaccine should now be produced and in what quantities. Their decisions are expected to be announced soon.

Lowly Lifesaver

Gout drug aids heart victims

Seldom has a drug company been so modest about one of its products. In describing Anturane, Ciba-Geigy Pharmaceuticals said only: "Its pharmacologic activity is limited almost exclusively to the potentiation of the urinary excretion of uric acid." In plain English, Anturane was considered useful only for the treatment of gout. But last week the preliminary results of a massive study, involving 1,475 heart-attack victims at 26 medical centers in the U.S. and Canada, produced a stunning surprise: the soft-sell gout drug may save or prolong the lives of hundreds of thousands of heart patients.

Each year in the U.S., nearly 1.1 million men and women suffer heart attacks of various types, and almost 700,000 die immediately or within a week or two. Among the 400,000 survivors, 47,000 die within a year. But the 96-member team reporting in the *New England Journal of Medicine* found that after treatment averaging 8½ months, the heart death rate (on an annual basis) among 733 patients who took Anturane four times a day was only 4.9%. In a comparison group of 742 patients who received only dummy pills (placebos), the rate was 9.5%.

The second cardiac catastrophe that kills so many original heart-attack victims within a year may be of two major types: occlusion (blockage) of a major coronary artery, or arrhythmia, a failure of the heart's electrical timing system. While expert opinions differ, occlusions may cause only about one-third of second-attack deaths, with electrical failures responsible for most of the rest. In this second group the death-rate reduction among patients taking Anturane was even more striking: only 2.7%, as against 6.3% for those on the placebo. There is no evidence as to how a reduction in blood levels of uric acid can affect the heart's electrical system. The most plausible explanation, still not fully understood, of Anturane's beneficial effects is that it somehow inhibits blood platelets from forming clots.

The researchers, headed by Temple University's Dr. Sol Sherry, at first intended to let all patients remain in the trial for one to two years (the study has already cost Ciba-Geigy about \$3.8 million). But the preliminary results were so startling that they felt impelled to publish them. This created an ethical problem: if it is known that an available treatment will save lives—perhaps 10,000 to 15,000 a year in the U.S.—is it morally permissible to continue treating patients with a placebo? The Solomon solution: describe the trial program explicitly to the patients, and let them decide whether they want to remain in the study.

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Education

Tuition Blues

To ease them, Carter seeks aid

The memo from Secretary of Health, Education and Welfare Joseph Califano to President Carter was urgent. "We must move quickly if we are to seize the initiative on this very hot issue," warned Califano. The issue: tuition aid for middle-income families with children in college, a form of relief that has become increasingly popular on Capitol Hill with campus costs accelerating at dizzying rates—up 77% from 1967 to 1976—and voters appealing for help. With two different plans already under consideration by Congress, each offering aid in the form of direct tax credits, which Carter opposes, the President heeded Califano's counsel and jumped in last week with his own variant: a \$1.5 billion Middle Income College Assistance Act.

Carter proposed an automatic \$250-a-year grant for college students from families with an annual income of \$16,000 to \$25,000. Such grants, part of the federal Basic Educational Opportunity Grant (BEOG) program, had previously been limited to students from families that earned under \$16,000 a year. The increased aid, according to Administration estimates, would cost \$700 million.

Additionally, Carter's package calls for expansion of the Guaranteed Student Loan program, under which the Federal Government pays the interest on loans for students from families with an adjusted income of \$25,000 or less a year while those students are in college. That ceiling would now rise to an adjusted family income of \$40,000 a year. A third form of federal aid, a work-study program that subsidizes 80% of the wages for student part-time jobs, would be expanded from \$435 million to \$600 million to cover approximately 280,000 newly eligible students.

In all, the Carter plan would aid 5 million students in 1979, 2 million more than at present, and cost \$500 million over the nearly \$1 billion that Carter originally hoped to earmark for such aid in fiscal 1979. "Increasingly, middle-income families, not just lower-income families, are being stretched to their financial limits by the growing costs of a university or college education," said Carter. In 1978, he pointed out, tuition, room and board will

average \$4,800 a year at private colleges and \$2,500 at public universities.

Carter's hastily worked-out measure was designed to counter the popularity of the two rival aid proposals now before Congress. One plan, introduced in the Senate last fall by Oregon Republican Robert Packwood and New York Democrat Daniel Patrick Moynihan, would allow a taxpayer to deduct up to 50% of the money paid for his children's tuition fees at private elementary and secondary schools and at colleges and universities, up to a limit of \$500 per child. In comparison, the College Tuition Tax Relief Act proposed by Delaware's Republican Senator William Roth is, like Carter's plan, limited to college students. It calls for an income tax credit of \$250 for a dependent's first full-time year in college, \$300 for the second year, \$400 for the third and \$500 for the fourth. Neither of the plans sets a limit on family income.

Defending his own more limited remedy, Carter charged that the other programs would be excessively costly and unfocused. The Packwood-Moynihan proposal would cost the Treasury \$4.7 billion a year and the Roth plan \$1.9 billion. Carter's \$1.5 billion. Direct tax credits, the President added, would also "provide benefits to those who do not need them."

A number of college educators who favor financial help for the middle class but reject tax credits without any ceiling on income have rallied behind Carter. But a few have sided with parochial school forces in favoring tax credits. "Carter's plan is too little and too complicated," argues Middle College President Olin Robison. "Two hundred and fifty dollars a child is nowhere near enough. And I favor a tax-credit system because it creates no new programs, no bureaucracy."

Meanwhile, neither Roth nor the Packwood-Moynihan team is prepared to abandon the tax-credit measures. Says Roth, whose proposal has passed the Senate three times but foundered in the House: "A majority in both the House and the Senate are sponsors of tuition tax credits." No fewer than 252 members of the House and 57 Senators co-sponsored various tax credit bills in the past year. Nonetheless, Carter's proposal has gained support from influential members of the House Committee on Education and Labor. Either way, the chances are good that middle-income families will win some relief from the 95th Congress.



DRAWING BY LORENZ. © 1977 THE NEW YORKER MAGAZINE, INC.
"Tuition is sixty-five hundred dollars a year or thirty percent of your gross income, whichever is more."



George Rose in *Devil's Disciple*

Theater

Silky Redcoat

THE DEVIL'S DISCIPLE
by George Bernard Shaw

The theater does not survive on its masterpieces but between them. Much the same is true of Shaw. His finest works, *Major Barbara*, *Heartbreak House* and *Pygmalion*, are rarely performed. Conversely, scarcely a season passes when the overestimated *Saint Joan* and *Candida* do not show up on some theater's docket. One could hardly underestimate *The Devil's Disciple*. Shaw himself thought that this 1897 play would eventually be considered a "threadbare popular melodrama."

Popular it was, and may again be in the Brooklyn Academy of Music's revival. The locale of the play is a small New Hampshire town in 1777. The colonies are at war with England. The British plan to hang a Yankee rebel. That man is the Rev. Anderson (Barnard Hughes). But he is away from home when the redcoats break in, and they mistake Dick Dudgeon (Chris Sarandon) for the pastor, since he is having tea with the pastor's wife. Dudgeon is the village scapegrace, a man so revolted by narrow-spirited Puritan cant that he has proclaimed himself "the devil's disciple."

Rather like the play, Dudgeon barely escapes the noose. The second act brings on a wittily cynical charmer in the person of General Burgoyne, who is portrayed with silky urbanity by the multifaceted George Rose. In addition to elongating a happy ending, Shaw has provided Burgoyne with a line worthy of the playwright's fellow Irishman, Oscar Wilde: "Martyrdom, sir, is the only way in which a man can become famous without ability."

—T.E. Kalem



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Insurers, lawyers, judges—all of us share some blame for this mess. But it is you, the public, who can best begin to clean it up—by making your views known to your elected representatives. Don't underestimate your own influence. Use it, as we are trying to use ours.

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¹Jury Verdict Research Inc. of Cleveland, Ohio, keeps records of million-dollar-plus awards. These, however, are only the tip of the iceberg. Extravagant jury-awarded damages set a standard for out-of-court settlements—the real problem, since most liability cases are settled out of court.

²A "tort," strictly speaking, is a wrongful act (other than breach of contract) for which damages may be recovered in court.

³In this case, a 23-year-old woman was arrested, tried, and found innocent of shoplifting. In turn, she sued the store and its special policeman. To compensate her for "depression, anxiety, nervousness, phobia, fears, and nightmares," the jury awarded her \$1,100,000 in damages. In the past, awards for such intangible damages were reasonably related to actual medical expenses and economic losses. Today, these

vague terms are often the basis for huge demands. We have recently seen the filing of a \$31-million malpractice suit on the grounds of "mental distress."

⁴Most awards are paid by insurance and any continuing increase in the size or number of awards must be reflected in insurance costs. For example, product liability insurance for manufacturers, and malpractice insurance for physicians, more

than doubled in one recent 12-month period. While these were averages country-wide, for many the increases were even more severe. In California recommended increases for product liability protection for clothing manufacturers jumped 400% in 1976, while malpractice insurance for some physicians increased 347%.

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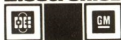
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People

She made her first big splash ten years ago, as a body-painted bikini girl on the old *Laugh-In* show. Now **Goldie Hawn** has switched to basketball scrimmages with the Harlem Globetrotters. "Playing with these guys, you've got to keep a stiff elbow and a stiff upper lip," explained the 5-ft. 6-in. Hawn, who taped the meeting for her March 1 TV special on CBS. More elbow and less lip might have worked better. Against the Globetrotters, Goldie came up short.

During a vacation trip to Argentina last summer, Albuquerque Mayor **David Rusk** (son of former Secretary of State **Dean Rusk**) learned that a group of Buenos Aires rugby players were planning a U.S. visit. Rusk, an old rugger from his days at the University of California, naturally invited the boys home to New Mexico for a match against the locals. And that might explain what the mayor, at 37 years of age and a stocky 215 lbs., was doing in an Albuquerque Aardvarks B team uniform, facing the Cardinal Newman Old Boys Rugby Club of Buenos Aires.



Goldie gets behind a special

Panting, mostly. Final score: Old Boys 11, Aardvarks 0. "I know the game; I played it for 14 years," gasped his honor at half time. "But I haven't played for the last six." Ah, the perfect host.



Pavarotti plows toward a solo recital at New York's Lincoln Center

His Senate appearances last summer drew millions of TV viewers, but these days **Bert Lance** is settling for smaller audiences as a commentator for WXIA-TV in Atlanta. "No man in the country has had wider experience in the tech-



Bert Lance banks on a new career as an Atlanta TV commentator

niques of investigative reporting," joked Carter Countrymen **Jody Powell** and **Ham Jordan** in a good-luck telegram from the White House. Or a better sense of his public. In his first 1½-minute spiel, Lance called for a permanent tax cut "for the working people of America," then later reflected on the chances of his minishow going national. "That would be the easiest way," he conceded, "to get back to Washington."

It all seemed "beautiful but a little scary" to Italian Tenor **Luciano Pavarotti**. No, not New York's newest layer of flaky white; rather, he was describing the Metropolitan Opera's first solo recital, which he was about to give at Lincoln Center. His audience: some 4,000 Met patrons plus 12 million public-television viewers. "When opera went to TV," reflected Pavarotti, "people could see it's not so stupid as they thought if it's well done. It's like antique furniture." Come again, Luciano? "You either like it or you don't."

It was a heady victory to be elected the first black mayor of New Orleans, but **Ernest ("Dutch") Morial's** first task was to find a job. He had left his state judgeship to run for city hall, and there was no paycheck in sight until his inau-

guration in May. "This is no joke," grumbled the politician after the election. "I'm looking through the classified ads." Morial is looking no more. Since his plight got some national press, the mayor-to-be has landed a fellowship at Harvard's Institute of Politics, a

once-a-week teaching assignment at the University of New Orleans, and an urban affairs consultant's post with a local TV station. "Being mayor will require that I work 20 hours a day," said Morial, when asked about his temporary three-job schedule. "It's good training."

On the Record

Bruno Kreisky, Austrian Chancellor, describing his visits to Moscow and Warsaw: "I insist on a working schedule only. After 30 years in politics, I know what steelworks look like and how china is made."

Walter Matthau, on being 57: "It's too old for a man to be an actor. I'd like to be in an office, picking up the phone, buying and selling bushels of wheat."

Karl Wallenda, on why he still walks the circus high wire at age 73: "I like to do things that other people cannot do. I can still do it, so I do it."

Michael Crichton, physician, author (*The Andromeda Strain*) and director (*Coma*): "I think we can all agree that American medicine, the way it is now, is not successful. But there's no evidence that the Government can run anything. If you like the Post Office, you'll like socialized medicine."



Artist with Ladder, 1972



Shoppers, 1976



Man with Hand Cart, 1975

Art

Making the Blue-Collar Waxworks

In Manhattan, the world's most realistic sculpture

Duane Hanson's exhibition of sculpture, which opened last week at New York's Whitney Museum, may not be the most aesthetically intriguing show in town. On that level, it is numbing. But it is bound to be the most popular. When Hanson's work was shown in Des Moines last winter, 98,000 people flooded through the turnstiles to see it. The reason is obvious enough. Everyone loves an illusion, and Hanson is an expert illusionist. His lifelike, life-size figures are cast in polyester resin and fiber glass painted to look like real skin, clothed in real garments and provided with genuine glass eyes. The craftsman's work is meticulous, not to say obsessive. It produces not images but model people—androids without the electronic guts. Each plastic scalp is the sum of myriad transplants; thousands of strands of fuzz are pricked into the cold, immobile forearm; the pigment on the skin replicates flesh down to the very last pore, zit, shaving nick and burst vein, while every T-shirt and pair of overalls displays exactly the right degree

of grunge, wear and spattering. Consequently, the presence of these figures becomes almost hallucinatory. "Speaking likenesses" that cannot speak but cannot, at a glance, be readily told apart from

their spectators, they lean against the Whitney's patrician white walls or sprawl on its carpet with the air of social intruders. One reacts to them first as people, because of their verisimilitude; then, after one's gaze has gone by them—social protocol discourages staring at people as sculptures are stared at—the double take happens, and because they are in a museum they are reclassified as "sculpture." Finally they turn out to be neither.

They are, in fact, waxworks.

But they are waxworks of a superior kind. At 53, Hanson has taken his craft beyond the limits of Mme. Tussaud: one can get within two feet of his *Man with Hand Cart*, 1975, and the only thing that demonstrates the wrinkles and veins are not real aged flesh is the figure's immobility. Astutely, Hanson generally reinforces the illusion by preventing the figure's eyes from meeting one's own—nothing gives the game away quicker than a glass eye that cannot blink. His work belongs in the context of photorealist painting, but it incorporates more illusions than painting can. The great period for waxworks was the 17th to 18th century, when the favorite court artist of the next-to-last Medici, Cosimo III, was a Sicilian named Gaetano Zumbo, whose fiendishly detailed wax tableaux of plague-rotted bod-



Sculptor Duane Hanson (left) shares seat with his *Man on a Bench*, 1977

Pores, zits, a double take, and thousands of strands of fuzz.

ies are still preserved in Florence. Hanson's proles, drunks, junkies and bulgy housewives do not reek of mortality like that, but they have a quotidian sourness about them, and their smell of perplexed defeat is as alluring to the sentimentalist as the moist gaze of a Landseer dog.

Born in Minnesota, Hanson studied sculpture with Carl Milles at Cranbrook Academy, then went to Germany where he worked in stone, wood and clay. He returned to the U.S. in 1960, settling in Florida in 1965 and teaching at the Miami-Dade Community College. Also in the mid-'60s, inspired by George Segal's white plaster casts of live models, Hanson developed his own more lifelike figures and more dramatic tableaux. "I think I must be a romantic," he says. "But we have to deal with the harsh reality of our industrial society. I'm interested in portraying the emptiness, the tragic side of life." What actually emerges is not tragedy, but a repetitious pathos. Tragedy depends (at the very least) on relationships, but none are set forth or implied in Hanson's work. What one gets, instead, is a parade of specimens. Its origins lie, equally, in Pop and social realism. Pop supplies the hard cool surface, social realism the interest in underdogs—an interest, however, which rapidly dissolves in voyeurism.

The "unsparing" statements about American reality for which Hanson's work is customarily praised have been made over and over again by photography; only the switch into another medium, sculpture, is novel. There is also, of course, the exquisite irony that collectors who would never dream of having a real construction worker in their living room will pay up to \$35,000 to display the fiber-glass replica of one by Hanson: these effigies have the same relationship to social reality as a stuffed rhino does to the veld.

They are stock characters. It does not take a very penetrating eye to notice that some Florida tourists resemble wizened monkeys in floral shirts, or that some American housewives are fat, glazed by the tube and bloated with junk food. But such is the level of Hanson's social perceptions; all his art can do is count the details without furnishing any credible insights. Like most "documentation" art, it is gratuitous, in a sprawling kind of way.

This would not matter so much if the sculptures had any aesthetic relationships to sustain them as fiction, but they do not. Nowhere in Hanson's work, once the first *frisson* of encounter has worn off—as, inevitably, it does—can one feel that an organizing, selective imagination has been intelligently brought to bear on its raw material. Instead we are offered a basic theatrical package, a quick jolt to the sense of reality which, unlike the pleasures of more organized or complex art, fails to renew itself. It all ends up as Norman Rockwell in 3-D and grimy jeans, minus the period optimism: not contemptible, but not the stuff of which anything but illustration can be made. —Robert Hughes

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Milestones

DIED, Herbert Kappler, 70, fugitive Nazi war criminal; of intestinal cancer; in Soltau, West Germany. The SS colonel who in 1944 directed the execution of 335 Italian hostages as reprisal for the killing of 33 Nazi occupation police in Rome, Kappler became known as "the Hangman of the Ardeatine Caves." He was sentenced to life imprisonment by an Italian military court in 1948 but was transferred to a Roman hospital in 1976 for cancer treatment. He weighed only 105 lbs. when his wife smuggled him out of the hospital in a suitcase last August, spiriting him away to West Germany, which refused to extradite him since that country's constitution prohibits turning over a citizen for foreign prosecution.

DIED, Charles Woolsey Cole, 71, former president of Amherst College (1946-60); of a heart attack; on a cruise ship off Los Angeles. The youngest man ever to head Amherst, Cole introduced a core curriculum required for all students and greatly enlarged the college's endowment. From 1961 to 1964 he served as Ambassador to Chile.

DIED, Bergen Evans, 73, popular, irreverent professor of English at Northwestern University (1932-75) who gained national recognition as a lexicographer and television host; after a long illness; in Highland Park, Ill. After the success of his 1946 book *The Natural History of Nonsense*, which wittily debunked old wives' tales, Evans became the moderator of two '50s quiz shows, *Down You Go* and *The Last Word*, and wrote queries for *The \$64,000 Question* (he was absolved in that show's rigging scandal). Evans was also author of *A Dictionary of Contemporary American Usage* and *Dictionary of Quotations*.

DIED, Abraham Lincoln Wirin, 77, for four decades chief counsel to the American Civil Liberties Union who frequently took its cases before the Supreme Court; of a stroke; in Hollywood, Calif. Wirin fought for workers during the '30s, helped restore the rights and property of Japanese Americans following World War II, and battled the death penalty as unconstitutional. In the A.C.L.U.'s libertarian tradition, he also counseled fascists, Nazis, religious fanatics, and criminals, including Sirhan Sirhan. Said Wirin: "The rights of all persons are wrapped in the same constitutional bundle as those of the most hated member of the community."

DIED, Sam Houston Jones, 80, former Governor of Louisiana (1940-44) who defeated Earl Long, Huey's brother and political successor, thereby ending a twelve-year, scandal-ridden dynasty; of kidney failure; in Lake Charles, La. During his term, Jones cut the state payroll by one-third and reorganized the government. When Jones ran for Governor again in 1948, he was upset by Earl Long, but continued to be active in reform politics.

Books

Leslie Fiedler's Monster Party

FREAKS by Leslie Fiedler; Simon & Schuster; 367 pages; \$12.95

A Peter De Vries character once described a literary intellectual as the sort who put his audience into a bathysphere and took them down three feet. He could not have met Leslie Fiedler, who, along with Norman Mailer, is one of the most daring skinny-dippers in U.S. literary and social criticism. Throughout a long career that includes some brilliant fiction (*Nude Croquet*, 1969), Fiedler has boldly led his readers down whirlpools of the national subconscious. In *Love and Death in the American Novel* (1960), he argued that the country's literature was obsessed with death and therefore incapable of developing mature heterosexual themes. Such matey relationships as Natty Bumppo and Chingachgook, Ishmael and Queequeg and Huck Finn and Jim, said Fiedler, were bonded by an innocent and idealized homosexual sentiment. He never said these heroes were homosexuals, though he did use "Come Back to the Raft Ag'in, Huck Honey!" as the titillating title of his essay.

Critics of the critic suggested that Fiedler was playing to the crowd with a limited script based on pop Freud and Jungian stereotypes. His enthusiasm for discovering mythic power in such popular arts as movies and comic books was not appreciated by the guardians of high culture. Yet Fiedler outflanked them by describing himself as a hybrid of chutzpah (Yiddish for nerve or gall) and *pudeur* (French for modesty or reserve).

This itself was an act of inspired chutzpah that cast Fiedler as a cultural

freak, an outsider and kinsman to all the Chingachgooks and Queequegs whose "otherness" defines white America. *Freaks: Myths and Images of the Secret Self* is a natural extension of Fiedler's concern with the "other." Only now he confronts not society's but nature's own outsiders. He would prefer a term less offensive than freaks, though he defends it against such euphemisms as mistakes of nature and *phénomènes* on the grounds that they "lack the resonance necessary to represent the sense of quasi-religious awe which we experience first and most strongly as children: face to face with fellow humans more marginal than the poorest sharecroppers or black convicts on a Mississippi chain gang."

At its most obvious, the book is a natural history of dwarfs, giants, hermaphrodites, Siamese twins, mutants, the monstrously fat, the grotesquely thin, dog-faced boys and zoophagous geeks. But the richly illustrated work is in fact a combination sideshow, meditation on human nature and medical textbook of the sort that librarians once kept locked away with scandalous volumes like Krafft-Ebing's *Psychopathia Sexualis*.

Fiedler the barker has no trouble luring his readers with freakdom's fabulous trivia. Royalty once kept dwarfs as pets, even sexual partners, though circus fat ladies rival dwarfs in subconscious erotic appeal. Chang and Eng, P.T. Barnum's "Siamese Twins," were temperamental opposites. Chang drank heavily and womanized; Eng teetotalized and sowed mild oats. Daisy and Violet Hilton, joined twins who appeared in Director Todd Browning's classic film *Freaks*,

Excerpt

“Children who are born legless or armless, their limbs amputated by a tangled umbilical cord, are sometimes hard to tell from true phocomelics, or seal-children, with vestigial hands and feet attached directly to the torso. But once identified, they are primarily felt as objects not of awe but of pity. The true Freak, however, stirs both supernatural terror and natural sympathy, since, unlike the fabulous monsters, he is one of us, the human child of human parents, however altered by forces we do not quite understand into something mythic and mysterious, as no mere cripple ever is. Passing either on the street, we may be simultaneously tempted to avert our eyes and to stare; but in the latter case we feel no threat to those desperately maintained boundaries on which any definition of sanity ultimately depends. Only the true Freak challenges the conventional boundaries between male and female, sexed and sexless, animal and human, large and small, self and other, and consequently between reality and illusion, experience and fantasy, fact and myth.”



Woodcuts from *Liber Chronicarum* (1494)

Nightmare confrontations with the body.



The wedding feast from Director Todd Browning's 1932 classic film *Freaks*

The power to reveal to gawking normals the fears and distortions of their own souls.

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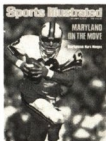


For kicks.



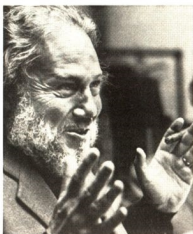
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Books



Critic and Teacher Leslie Fiedler

Whirlpools of the subconscious.

sational aspects of his book. "Nobody," he admits, "can write about Freaks without somehow exploiting them for his own ends." The author compensates by investing freaks with the power to reveal to gawking normals the fears and distortions of their own souls. Fiedler sees such revelations as psychological necessities: "What monsters men have needed to believe in they have created for themselves in words and pictures when they could not discover them in nature." Velásquez painted them, Kings and Queens played with them, Abe Lincoln and Mark Twain swapped stories with them. But as Fiedler describes it, a combination of social consciousness, demythologizing science and "therapeutic abortions" has helped make the true freak a vanishing species. "Those of us now living," he declares, "might well represent the last generations whose imaginations would be shaped by a live confrontation with nightmare distortions of the human body."

Yet the need for freakishness is unending. It lives on in the mutants of literature—Dracula, Frankenstein's monster, Günter Grass's dwarf in *The Tin Drum*, John Gardner's monstrous *Grendel*—and in today's science fiction. In addition Fiedler notes that counterculture youths of the '60s proudly called themselves "freaks" and spent a good deal of their time "freaking out." Their comic books grew freak filled, and their music more grotesque. "Rock stars of the moment," says Fiedler, "have taken on the personage of two classic sideshow Freaks: the Geek and the morphodite. Or rather they have improbably combined the two to create a new Single O: the androgyne as cannibal, a zoophilous Half Man/Half Woman, who for the blow-off screams over the electronically magnified rhythms of what has come to be called 'freak rock.' You could learn to dine on your friends."

Freaks is full of such provocative

plunges. It is the style that put Fiedler high on the charts a generation ago, when literary intellectuals were making their play to become culture heroes. Many of those old knights in shining elbow patches have since retired on their *pudeur*, overtaken by the very cultural upheavals and ambivalences on which Leslie Fiedler still thrives.

—R.Z. Sheppard

There is a running joke in the Fiedler family that its lively patriarch gets up each morning with new instructions for his epitaph. "My favorite," says Fiedler, "is 'He was nothing if not ambivalent!'" At 60, the cigar-smoking Fiedler resembles Karl Marx as portrayed by Richard Dreyfuss. The eyes are mirthful, the face bearded and benignly grizzled, the mouth fine and supple from years of pumping irony. There is no trace of the mashed vowels of his native Newark, N.J., that satellite of New York City that has produced writers as different as Stephen Crane and Philip Roth.

For his college education Fiedler commuted daily to New York University, nearly a four-hour round trip by bus, train, ferry and subway. "To this day," he says, "I can read and write under any conditions except total peace and quiet. I once went to Yaddo la privately endowed retreat for writers in Saratoga Springs, N.Y., and ended up going to the races."

After earning his Ph.D. in English from the University of Wisconsin and teaching at the University of Montana, Fiedler found his career stalled at World War II. He joined the Navy, was taught Japanese and sent to the Pacific as an interpreter. On Guam, Saipan and Iwo Jima, he discovered the strange emotional mechanisms that spark affections between prisoners and their captors: "In a war situation that was tearing people apart, I was in the business of drawing people together." In 1967 Fiedler saw things from the other side. The prestigious professor at the State University of New York at Buffalo was arrested on a charge of allowing his home to be used for marijuana smoking. His first wife, two of the couple's six children and a number of their friends were also booked. Suspended sentences and fines were handed out, but the deeper cost was recounted in Fiedler's book *Being Busted* (1970).

The critic and teacher still makes his academic base camp at the university in Buffalo, though he is frequently on the lecture circuit, where he prefers the informality of the West to the mannered East. "At Princeton," he says, "they call you sir. In Montana they call you doc."

Wherever he goes in the U.S., Doc Fiedler maintains his passion for talking and writing about society's strangers—red men, black men, and now, the deformed. If the new book seems less academic and theoretical than many of the author's earlier works, it is simply because, as Fiedler says, "you can't talk about abstractions when you talk about freaks."

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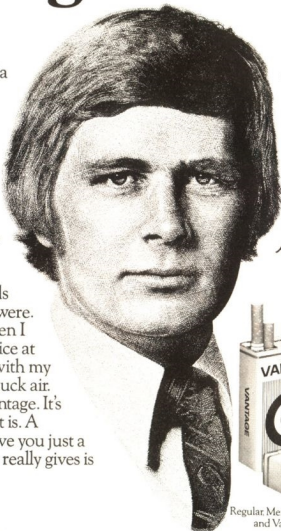
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Books

Sunny Boy

MONTGOMERY CLIFT

by Patricia Bosworth
Harcourt Brace Jovanovich;
438 pages; \$12.95

Before there was Pacino, or De Niro, or Nicholson—before there were James Dean and Marlon Brando even—there was Montgomery Clift. Bursting onto the screen in *Red River* and *The Search* (both 1948), Clift set the standard for a whole generation of actors. He was intense and hypnotically alive. His lines seemed to come not from the script but from the gut, and he seemed dangerously unpredictable, like a high-tension wire torn from its moorings. For the better part of a decade, Clift was the star producers sought first. But then, in the longest suicide in Hollywood history, he crushed both life and career under an avalanche of booze, pills and inexplicable anguish. He was only 45 when he died in 1966, but most people, himself included, had already attended his funeral a dozen times before.

It is a sad but fascinating story, and Patricia Bosworth, who received the cooperation of Clift's family, has turned it into compelling reading. The cooperation was necessary because Clift's problems, to a unique and peculiar degree, began long before he was born. His mother, whom everyone called Sunny, was an abandoned child who grew up in the family of a drunken steelworker in Germantown, Pa. Only when she was 18 did she learn from



The Clift career: debut fadeout with Liz

A high-tension wire torn from its moorings.



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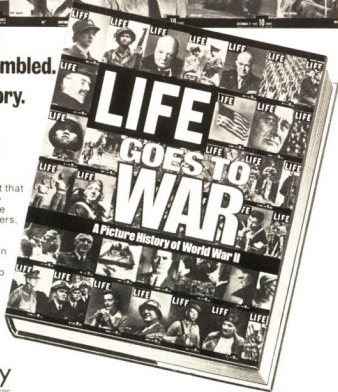
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Books

the doctor who delivered her that she was descended from two of the most illustrious families of America, the Blairs of Maryland and the Andersons of Virginia. One grandfather had been Lincoln's Postmaster General; the other had commanded Union forces at Fort Sumter. Her unmarried mother, Maria Anderson, had given her out for adoption, with a promise some day to come back for her. She never did, and Sunny spent most of her life seeking a claim to lineage.

When her own children were born, Sunny raised them as if they were exiled royalty. Her husband, a prosperous Chicago banker, allowed her every whim; Sunny and the children—Brooks, Monty and Monty's twin sister Ethel—spent most of their early years at Eastern resorts or in Europe. The kids were privately tutored, and Sunny prevented them from mixing with anyone outside the family. She refused to lower her expectations even after Bill Clift lost his money in the Depression. Though the Clifts moved to a one-room apartment in Greenwich Village, the sheets were made of silk, and the table was always set with sterling silver.

Monty's talent for acting (or pretending) became apparent when he was only twelve or 13, and that, coupled with his unusually handsome face, soon put him in Broadway shows. By 1935 he was in the Cole Porter musical *Jubilee*; five years later, at 19, he was acting with the Lunts in *There Shall Be No Night*. Alfred and Lynn taught him his craft, and almost adopted him. "From your real mother and father," was the way they signed a picture for him.

Hollywood summoned the actor early on. L.B. Mayer, the head of MGM, supposedly broke down in tears when Clift said: "Your scripts are bad, Mr. Mayer, and I don't want to be typecast—that'd ruin me." Finally, when he did go West for *Red River*, it was on his own, precedent-setting terms, and he did not have to sign the standard seven-year contract that had hobbled so many earlier stars. His best parts came in the early '50s, in *A Place in the Sun* with his friend Elizabeth Taylor, and in *From Here to Eternity*.

Clift's only rival was Brando, who also symbolized the outsider in those pre-hippie, pre-beatnik days. When the two of them were making *The Young Lions*, Brando, who was playing a Nazi officer, had the idea that in his death scene he should roll dramatically down a hill and land with his arms outstretched like Christ's. "He does that, I'll walk off the picture," Monty fumed, afraid that Brando would steal the movie. In the printed scene, Brando is simply shot in the head by Dean Martin. Later, however, during Monty's dark days, Brando came to him and tried to help him. "I've always hated you because I want to be better than you," Brando admitted, "but you're better than me—you're my touch-

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**DRAW
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Books

stone, my challenge, and I want you and I to go on challenging each other." But Monty was no longer up to challenges of any kind. Sometime during the early '50s, at the very moment of his triumph, he became addicted to drink and drugs. After a catastrophic Hollywood car crash in 1956, which left his face an awkward mask, his decline became a slide. Bosworth seems to pin much of the problem on guilt over his homosexuality—or bisexuality, as she maintains it was—but the evidence is totally unpersuasive. Good as her book is, it offers no real reason for Monty's downfall, which was as mysterious as his talent. In one of his last illnesses Clift was visited by his mother, cheery as always. "Oh Ma," he finally cried, "give me your strength. I need your strength." That was the one thing Sunny could not give him, then or ever.

—Gerald Clarke

Editors' Choice

FICTION: Daniel Martin, *John Fowles*
The Honourable Schoolboy, *John le Carré* • The Professor of Desire, *Philip Roth* • Song of Solomon, *Toni Morrison* • Transatlantic Blues, *Wilfrid Sheed*

NONFICTION: Coming into the Country, *John McPhee* • The Diaries of Evelyn Waugh, edited by *Michael Davie* • Dispatches, *Michael Herr* The Last Cowboy, *Jane Kramer* Letters to Friends, Family and Editors, *Franz Kafka*

Best Sellers

FICTION

1. The Thorn Birds, *McCullough* (1 last week)
2. The Silmarillion, *Tolkien* (2)
3. The Honourable Schoolboy, *Le Carré* (3)
4. The Black Marble, *Wambaugh* (5)
5. Bloodline, *Sheldon*
6. Dreams Die First, *Robbins* (7)
7. Beggarman, Thief, *Shaw* (6)
8. Illusions, *Bach* (4)
9. Rachel, The Rabbi's Wife, *Tennenbaum*
10. The Women's Room, *French*

NONFICTION

1. The Complete Book of Running, *Flax* (1)
2. The Second Ring of Power, *Castaneda* (3)
3. All Things Wise and Wonderful, *Herriot* (2)
4. The Amityville Horror, *Anson* (5)
5. Coming into the Country, *McPhee* (8)
6. My Mother/My Self, *Friday* (6)
7. Dispatches, *Herr*
8. Looking Out for #1, *Ringer*
9. The Book of Lists, *Wallechinsky*, *I. & A. Wallace* (4)
10. Gnomes, *Huygen* & *Poorvliet* (7)

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Sexes

The Women of Israel

Second-class citizens in a nation at war

Betty Friedan seemed to be in shock. On a visit to Israel, the American feminist stopped by for a chat with Yael Dayan, the novelist and daughter of Moshe Dayan. Surrounded by her children, Dayan talked apologetically of her commitment to the ideals of femininity and motherhood. Says she: "I presented a model of the slaving wife resigned to her fate."

It was hardly what Friedan expected. Though Americans tend to think of Israeli women as strongly independent souls with a grenade in one hand and a wrench in the other, reality is more prosaic. After 30 years in a progressive democracy, one of whose founding precepts was sexual equality, the women of Israel are still clearly second-class citizens, severely restricted by law and custom. "The liberation of Israeli women is a myth," says Journalist Lesley Hazleton in her new book, *Israeli Women*. "They move in a male world of reality in the false guise of equals."

Hazleton, 32, was raised in England, and is both a British subject and an Israeli citizen. She has lived in Israel for twelve years, teaching psychology at the Jerusalem Experimental High School and at the Bezalel Academy of Arts and Design, writing for the *Jerusalem Post* and serving as a stringer for *TIME*.

By Western standards, she reports, Israel's attitude toward women is regressive. Women are not allowed to testify in rabbinical courts, which handle divorce and marriage for all Jews. They cannot divorce without a husband's permission, and childless widows need a brother-in-law's approval for remarriage, sometimes gaining it with bribes. If a woman has been widowed three times, with all three husbands dying of natural causes, she is declared the *isha katlanit*, the fatal woman, and is legally forbidden to marry again. If a husband simply disappears, no matter how long he has been missing, his wife cannot remarry without absolute proof of his death.

Despite the fighting Amazon image in American movies like *Exodus* and *Judith* and in a stream of popular novels, women in the army are not allowed in combat—or anywhere near the fighting. Instead, they serve mostly in support jobs as typists, clerks, nurses and teachers. The reason, says Hazleton, is that Israel is committed to paternal protectiveness toward women: "The army exists to protect Israel's women, not to endanger them in its ranks."

In civilian employment, women are not much better off. Only a third of them

work outside the home, mostly in lower-paying jobs. Women account for only 9% of the higher-grade civil service positions, 2% of full professors, 1% of the nation's engineers. Only 6% of working women are employers or self-employed. Though the law calls for equal pay for equal work, many women are paid less than men for similar tasks, and, with a few exceptions, women are legally barred from nighttime work on the theory that it is potentially injurious to their health.

Why such inequality? Hazleton be-



Israeli mother with children in Jerusalem

Fighting wrinkles, not discrimination.

lieves that 30 years of anxiety about war has sapped all energies for reform. Says she: "It is too much to fight against in a country that has plenty of wars already." Feminism is judged a curious American import. Asks Tamar Eshel, head of the working women's organization Naamat, "Should we demand far-reaching changes at this time, at the price of splitting the nation, when we are involved in a national struggle for our existence?"

More important, says Hazleton, the shock of the Holocaust, followed by a generation of intermittent wars, has produced a hunger for the normality of traditional

sex roles—man as protector and breadwinner, woman as mother and comforter of men. Marriage and childbearing are "national priorities" that produce social prejudices against the widow and the unmarried woman. "To be single," writes Hazleton, "is considered the greatest misfortune that can befall an Israeli woman." In primary schools, she says, youngsters absorb "a shocking degree of sex stereotyping" that takes its toll on Israeli females. One kibbutz psychologist finds that girls are consistently more moody, tense, tired and anxious than boys.

In the kibbutzim, men call the tune and fill almost all of the important jobs. Writes Hazleton: "Sexual polarization is by now so deep on the kibbutz that not even the extreme crisis of war can induce women to work in production." Instead, women are cozily content with minor roles and worry a great deal about their looks. "There is hardly a kibbutz that does not have a beauty parlor—an abomination and unforgivable bourgeois luxury in the old days," says Hazleton. "The fight of kibbutz women is against wrinkles, not against discrimination."

Because of the Arab threat, she says, the ideals of femininity and male dominance are still gaining in Israel: "It may well be that Israeli women will not... be ready to enjoy or demand full equality until there is some form of peace for Israel. But lest that peace be meaningless for them, they must start now."

Sick Again?

Psychiatrists vote on gays

In a much debated vote by its membership four years ago, the American Psychiatric Association decided that homosexuality should not be defined as a disorder. For many psychiatrists, that poll has hardly disposed of the issue—as a new survey by *Medical Aspects of Human Sexuality* shows. The journal sent questionnaires to 10,000 members of the A.P.A., and compiled the first 2,500 responses. Of those answering, 69% said they believed "homosexuality is usually a pathological adaptation, as opposed to a normal variation," 18% disagreed and 13% were uncertain. Similarly, sizable majorities said that homosexuals are generally less happy than heterosexuals (73%) and less capable of mature, loving relationships (60%). A total of 70% said homosexuals' problems have more to do with their own inner conflicts than with stigmatization by society at large. Many of the doctors doubted that homosexuals could be trusted with important jobs. To the query "Are homosexuals generally a greater risk than heterosexuals to hold positions of great responsibility?" 43% of the therapists answered yes.

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It used to be only high tar cigarettes could deliver rich, satisfying tobacco flavor. Used to be—until MERIT.

Recent reports on 'Enriched Flavor' tobacco—the new taste technology of smoking—show most MERIT smokers are making the move directly from high tar cigarettes.

Many from brands they've enjoyed for years and years.

It seems MERIT is filling the taste void for these smokers, the most hard-to-please critics of low tar cigarettes.

Taste-tests among thousands of smokers show why.

Merit Matches Higher Tar Competition

Both MERIT and MERIT 100's were tested against a number of higher tar cigarettes.

Overall, smokers reported they liked the taste of both MERIT and MERIT 100's as much as the higher tar cigarettes tested.

Cigarettes having up to 60% more tar!

Only one cigarette has 'Enriched Flavor' tobacco. And you can taste it.

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MERIT

Kings & 100's

A simple truth about color TV:
You don't have to settle for a color picture that won't stay right. Zenith's Color Sentry controls and corrects your color picture. Thirty times a second. Think of it as a TV control room in your set. To give you that great Zenith picture—automatically.



ZENITH
COLOR SENTRY

The quality goes in before the name goes on.®

Color Sentry available in 13" through 25" (diagonal) screen sizes.

Shown: The Reynolds, SJ2543E, with Oak veneers on top and ends; front and base of simulated wood. Simulated TV picture.